The Builder.

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The Forum of Trajan and other Notes from Rome.

COMM. BONI'S examination of the column of Trajan is now completed, but it has led him on to further researches in the Forum of Trajan, which are still in progress, and which bring before us problems of considerable importance. He himself published an interesting account of them, as far as they had gone up to that date, in the *Nuova Antologia*, for November 1, 1906, pp. 3-39. The first portion of the article deals with the mediæval legend of Trajan and the widow, according to which Trajan, when starting for one of his wars, was stopped by a poor widow who demanded vengeance for her son who had been killed, and, conquered by her persistence, did her justice on the spot. Dante tells the tale in the *Purgatorio* (X.). It was for this act of clemency and justice that Gregory the Great obtained the deliverance of the soul of Trajan from hell. Comm. Boni has collected a large number of interesting representations of the legend in art (pictures, engravings, sculptures, etc.), and traces back its genesis with some probability to a relief, formerly attributed to Trajan, which probably belongs to the period of Marcus Aurelius, and was used by Constantine for the decoration of his arch. In this relief (*Papers of the British School at Rome*, Vol. III., pl. XXIV., No. IV.) the arrival of the Emperor in Rome is represented, and a recumbent female figure, with the body nude (the legs being draped) and, with her left arm resting on a wheel (the personification, therefore, of one of the great high roads), stretches out her left arm to him. It must be said that the attitude of this figure seems hardly suitable, and we may note that it has generally been supposed that a relief representing the emperor with a captured province, personified as a kneeling woman before him, was the source of the legend; but in such a relief on the arch of Trajan at Benevento there are no horses or floating standards, such as are seen in the mediæval representations. It is not difficult, however, to assume that the actual relief has since disappeared.

The rest of the article deals with the rediscovery of the chamber within the base of the column (see *Builder*, Vol. XC., No. 3296, April 7, 1906, p. 368), and with the results of excavation below the level of the courtyard in which it stood. It was discovered that a large hole had been made in the foundation, consisting of one course of large travertine blocks (themselves resting on a mass of concrete), upon which the base was erected, no doubt by mediæval treasure-seekers who hoped to find the golden urn in which the ashes of Trajan were enclosed. The hole had been used as a place of burial in connexion with the Church of S. Nicola de Columna, and contained some fifteen skeletons, below which lay a stratum of earth with pottery of the VIIth-Xth century A.D., and above them Renaissance pottery, the church not having been removed until the time of Pope Paul III., in 1536. This hole has now been filled up with solid concrete, and the stability of the column thus secured, so that it is possible to leave open the chamber in the base. It was in this chamber, in all probability, that the urn containing Trajan's ashes was placed; on the north-west side the wall is now rough for a height of 2½ ft., and the floor for a width of 4 ft., and both for the full length of the chamber, showing that originally there was a bench or table there of solid marble of these dimensions, which has since (very possibly in classical times) been chiselled away. The lower section of the whole base is composed of two enormous masses of marble, which must have been worked to a great extent —as indeed must the whole column— after they had been put in position.

The excavation of the cavity in the foundation before alluded to led to the discovery, immediately to the north-west of the column, and 5 ft. below the level of the time of Trajan, of the pavement of a road, the orientation of which, as given by remains of buildings on its northern edge,* diverges some 19 degrees to the north of that of the Basilica Ulpia, and ascends slightly towards the Quirinal. Below it runs a drain in *opus incertum*, and below it again remains of an earlier pavement of rammed tufa fragments. The virgin soil was nowhere reached.

More recently the line of this road has

* These are built of concrete, faced, not with bricks, but with fragments of tiles (*lorica testacea*), and may be attributed to the 1st century A.D.

been followed further to the west, and the drain, which ran beneath it, has been brought to light once more at the western edge of the enclosing wall of the excavated area. Close to this drain and parallel to it are two blocks of tufa, measuring 4 by 2 by 2 Roman ft., one of which has been cut by the foundations of the portico which surrounded the column, and which was destroyed on this (the north) side when the Temple of Trajan was added to the original plan of the Forum.

Whether these blocks belong to the early fortifications which must have blocked the valley at or near this point is not yet clear, and the answer to the question must await the continuance of the excavations. It is noticeable that the existence of pre-Trajanic foundations was discovered in the course of the excavations of 1812-14. Nibby, in his edition of Nardini's *Roma Antica* (Rome, 1818), II., 351, says: "This [the hemicycle to the north-east of the Forum proper, known to mediæval topographers as the Bagni di Paolo Emilio, whence the corrupted form Magnanapoli] only served to support the lower slopes of the mountain, and to cover the previously existing buildings or substructions, which were cut irregularly to give a regular plan to the Forum.* These buildings exist in great part under the Palazzo Ceva, and in the nunnery of S. Caterina di Siena, and are all constructed on the slope of the hill, and some of them even at a level higher than that of the Forum. Similarly other walls of earlier buildings which had been cut were found in making the drain to allow the water to run off exactly beneath the floor of the porticoes indicated above (*i.e.*, those of the two libraries, on each side of the column and that to the north of it), near the column. All this proves that the part of the Quirinal which was levelled down was not where the great column was afterwards raised, because the hill never reached so far, and if it did, it had been levelled at a time before Trajan. He rather destroyed the hill towards the Palazzo Imperiali, *i.e.*, in the northern portion of the Forum."

This passage has, however, been almost entirely forgotten by subsequent writers, and is not alluded to by Comm. Boni in his article; and though geologists, such as Brocchi (*Dello stato fisico del suolo di Roma* (1820), 133), and Portis (*Storia fisica del bacino di Roma* (1893), 17), have doubted the possibility of the existence of a ridge joining the Quirinal and the Capitol, the inscription on the column,† has, by several topographers, been taken to mean, not only that the column was erected to show the greatest height of the hillside cut vertically by Trajan in connexion with his building operations, as Professor Hülsen maintains (*Roman Forum*, p. 21), but that, before Trajan began the construction of his Forum, the ridge connecting the two hills existed to a height equal to that of the column at the exact point where the column stands. This has, of course, been now proved to be impossible; and it seems best to accept the explanation of Professor Hülsen. Comm. Boni, on the other hand, prefers a new interpretation of the inscription, according to which the reference would be, not to the height of the cutting at any point, but to the erection of the column as a belvedere, from which might be observed the height to which the magnificent buildings of Trajan had been raised, and the depth and width of the site between the two hills on which they were erected. This interpretation of the Latin seems, however, somewhat difficult to accept.

The question as to the most suitable line of road through the Forum of Trajan and the other Imperial Fora, in order to connect the Via Cavour and the Piazza Venezia, has been comparatively little discussed during the last few months (see *Builder*, Vol. XCI., No. 3313, August 4, 1906, p. 166). But a proposal has been made by Signor Monaco (*Tribuna*, October 2, 1906) to bore a tunnel under the Capitol from the south-east end of the Via di Marforio to the Theatre of Marcellus so as to connect the quarters of Rome near the Tiber with the upper districts of the city, and obviate the necessity of crossing the Forum Romanum. As he rightly remarks, the Via Cavour was originally intended to make this connexion by crossing the Forum; the progress of the excavations, and especially the uncovering of the Basilica Aemilia (which, by the way, will be continued next year, the houses which occupied the rest of the site having been almost entirely demolished during the summer) have considerably increased the width of the area to be traversed; but the present viaduct is utterly inadequate, and has the demerit of dividing the buildings immediately below the Tabularium from the rest of the Forum. An open iron bridge across the Forum would be ugly, it is true, but would have the merit of not dividing it into two disconnected parts; and from a practical point of view either it or the tunnel will probably be found to be necessary to the traffic of Rome in the not very distant future. The tunnel project, as its author points out, would go with any of the schemes for the connexion of the Via Cavour and Piazza Venezia.

In the course of last May the newspapers announced the discovery, a little more than 11 miles from Rome, on the Via Salaria, of a "puteal constructed for expiation near the Allia, at the point where the disastrous battle between the Romans and the Gauls occurred." The site is, indeed, quite close to the Fosso Bettina, the probable representative of the Allia—though whether the battle was fought on the left or the right bank of the Tiber is uncertain, the probabilities being, perhaps, in favour of the latter.*

But the monument referred to, which lies in the low ground between the road and the river, about 100 yds. from the former, and due west of the Casale S. Colomba, is neither more nor less than a large circular tomb, just over 100 ft. in diameter, the foundations of which, in concrete, are alone preserved. From the centre radiate six walls (a rectangular hole at their junction has been wrongly supposed to be the actual *puteal*), each of which runs to the centre of the back of a semicircular niche with a vaulted roof facing outwards. These six niches must have formed the principal part of the external decoration of the tomb; below them came the circular base, which was faced with blocks of travertine, some of which are still preserved. Of the upper part of the tomb nothing is preserved, and there are no elements for the reconstruction. Nor is it possible to determine the position or the nature of the chamber which contained the remains of those buried within. It would seem probable that the centre was occupied by a mound of earth, inasmuch as here the foundations all finish off on one level, and look as if they had never been higher.

* Comm. Boni has found remains of earlier buildings under the *sette* pavement of this hemicycle.

† *Ad declarandum quantæ altitudinus mons et locus antis operibus sit egestus.*

* The question is fully discussed in *Papers of the British School of Rome*, III., 24 sqq.

THE WORKMEN'S COMPENSATION BILL.

THE Workmen's Compensation Bill has passed through the Report stage, and by the time these words are printed it will have passed the third reading.

Some important amendments have been introduced at this stage in the Commons, and we will briefly draw attention to the most noteworthy. Since the introduction of the Bill continual alteration has been effected in the period which should elapse during which an injured workman should not be paid compensation. In the present Act this period is fourteen days, in the Bill as introduced this was shortened to seven days, further abbreviated to three days in Committee, but now again has been placed at seven days, but with this important qualification—that when the incapacity lasts fourteen days the compensation is to date back to the time of the accident.

Two amendments have been introduced into the Bill to which we take very serious objection, and which we will treat of together.

In cases of death from injury or serious and permanent disablement the fact that a man has been guilty of serious and wilful misconduct is no longer to prevent him from obtaining compensation. Also, in the cases of disease which are within the Bill, the fact that a man has contracted the disease through wilfully and persistently disobeying regulations made for his own safety is not to prevent him from being compensated. How is it possible to justify the omission of these necessary provisions from the Bill?

Legislation of this character is an entirely new departure. When the Legislature placed the liability to compensate a workman on his employer even when that workman had contributed to his own injury, that was in itself a departure from a well-established principle of law. The meaning of the words "serious and wilful misconduct" has been very strictly construed in interpreting the Act, and in England very few cases have occurred where this defence has been substantiated. The House of Lords have laid it down that the misconduct must be really serious, such as would justify an employer in summarily dismissing his servant, yet this limitation has not sufficed to meet the views of the Labour Party, and the servant guilty of serious wilful misbehaviour and persistent neglect of the precautions provided for

his own safety is to call upon his employer for compensation wholly caused by his own misconduct, and is placed on the same platform—if the consequences are also serious—as the faithful and well-behaved employée. What will be said in future ages of legislation devised on such principles?

In connexion with this subject we may point out that amendments have also been introduced into the Bill which give the Secretary for State power by order to extend the Act to diseases other than those which are scheduled in the Act, and that although the order will be laid on the table of the House, the House will have no voice in approving or disapproving this order.

Another surprising extension of the Act has taken place in a somewhat dramatic manner. Domestic servants have all along been excluded from the operation of the Bill, and the Home Secretary opposed an amendment which proposed their inclusion, but at the invitation of the Prime Minister the amendment was accepted. Such an extension of the Act should hardly have been sprung on the country at the eleventh hour. The Home Secretary and the Solicitor-General both pointed out that although the accidents were few and the risks very low there was reason to believe that the rates of insurance would be very high, and there can be no justification in placing this burden on all employers. Domestic servants being employed on their employer's own premises, depending upon him for food, lodging, washing, and very often medicines, are in no way in the same category as other employées, and it would be nearly as reasonable to apply the provisions of the Factory Acts to domestic houses as to make domestic servants the subjects of compensation.

During the present Parliament an inclination has been only too apparent to alter the entire character of measures during their passage through the House, as it were on the spur of the moment, and without adequate debate or consideration, and the Bills introduced have been offered to the country in the form of dissolving views.

THE TRADES DISPUTES BILL.

THE Trades Disputes Bill was read the second time in the House of Lords last week. There was a general consensus of opinion in the House that objection should not be taken to the Bill at that stage, but many of the noble Lords who spoke upon the measure voiced the objections to the Bill which we have urged against it in these columns during its passage through the House of Commons. The Marquis of Lansdowne, however, expressed the opinion that it would be useless for the House to oppose this Bill, but they could disclaim any responsibility for it. We venture to think that Lord James of Hereford was right when he said that such a position was untenable, and that in the position of parties in that House it was impossible for the Lords to disclaim responsibility. As long as the House of Lords remains an integral part of the Constitution it would seem impossible for it to disclaim responsibility for any measure it passes, by publicly washing its hands beforehand.

The Leader of the Opposition in the House, it is to be observed, based the impossibility of opposing this measure on the assumption that the country had called for it and had given the Government a mandate in unmistakable terms. If this were the fact there is no doubt that the position of the House of Lords would be one of extreme difficulty—but is it the fact? If the Government was given such an unmistakable mandate by the constituencies, how was it that the Government itself first brought in a measure conceived in quite different terms? The original Government measure was altered in forty-eight hours not by a mandate from the country, but by the importunity of the Government's own followers. If the figures given by Lord Halsbury in the House were correct—that the strength of the unions is 2,000,000, as against 8,000,000 non-union men—should not those 8,000,000 non-unionists be given the opportunity of recording their opinion on the Bill before the House of Lords abdicates its functions and allows the Bill to pass into law?

That some reform in the law is necessary will readily be conceded, and possibly the opponents of the Bill will forego their opinions and allow the Bill to pass with the exception of clause 4. Clause 4, which Lord Halsbury has characterised as outrageously unjust and tyrannical, and which creates an unheard-of privilege, can hardly be allowed to pass unchallenged. Lord James of Hereford, who has advocated the cause of the unions in the past, well sums up the effect of this clause in saying it amounts to this: "Simply register yourself as a trade union; whatever wrong you may inflict, whatever destruction of property may be caused, we, the Legislature, give you our blessing to go forth and do it."

NOTES.

Official Architecture.

THE full report of the discussion at the Institute of Architects on the 3rd ult. is now in the hands of members, who can form their own judgment on the arguments used on both sides. We must say that we hardly think that the discussion, and the amendment to Mr. Wills's resolution (carried though it was by what is correctly stated as an "overwhelming majority") finally disposes of the question, the real point of which has been rather lost sight of on both sides. Mr. Riley, who made a very moderate and very sensible speech from the "official" side, proposed as an addition to Mr. Wills's first resolution the words "unless they had an architectural training," and this was accepted as an *eirenicon* by the majority of the meeting. But that does not involve a full recognition of the position. Whether a man has had an architectural training or not, he is not appointed town architect or town surveyor for his artistic qualifications, but for the testimony he can show as to his technical knowledge and his administrative ability. There is not a Town Council in the Kingdom who would appoint an official architect on evidence of architectural genius mainly. And therefore, though, as Mr. Burnet suggested, he may turn out a genius—a concealed Michelangelo—the probabilities are against it. And in addition to this, the work of an official architect inevitably tends to take his attention off from the artistic side of architecture, and to deaden his artistic faculty. The spirit of artistic design requires continual nourishment in a congenial atmosphere; it tends to droop and languish amid a routine of practical duties. And that is why we are still of opinion that the employment of official architects to carry out large and important buildings is a mistake, in the highest interests of architecture. It is desirable that large buildings which form an important element in the architecture of a city should be works of art, and not merely well constructed and well planned shelters. They are more likely to be such if they are carried out by those who have given their minds to the study of architecture as an art, and are not entangled in administrative routine. And it is a duty which official bodies owe to the public (whether they know it or not) to get the best architecture they can, whether by competition* or by engaging an architect of recognised architectural genius.

The Coast Erosion Commission.

MOST of the evidence taken during the last two sittings of the Royal Commission on Coast Erosion was tendered by engineers representing various watering-places on the south, east, and north-east coasts of England. The necessity for protective works is well illustrated by the case of Brighton, where, as Mr. Weller stated, erosion has been going on from the earliest dates. Unfortunately, in spite of the outlay that has been incurred by the Corporation of that town in the construction of costly groynes, the supply of littoral drift is steadily diminishing, owing to the erection of groynes and other obstructions to the westward. We quite agree with Mr. Palmer, the Borough Engineer of Hastings, in the opinion that much money has been wasted in the past through the faulty design of groynes. In fact, Brighton affords a very fair illustration of this very point. Mr. Matthews, the Borough Engineer of Bridlington, was certainly correct in the view that piers and harbours are important indirect causes of erosion, but he said nothing of the injury done to the coast beyond some seaside towns by the wholesale interception of shingle by extensive protection works, such, for instance, as those recently executed at Bridlington. At present every large seaside town is looking after its own interests, caring nothing for the rights of landowners beyond. This affords a powerful argument in favour of the proper supervision and control of all coast protection works by a central authority.

The Tribunal of Appeal.

THE *Law Times* of November 24 contained a paragraph on the case "Receiver of Metropolitan Police *v.* Piccadilly Hotel

* The suggestion made by one speaker, that the official architect should be admitted as a competitor with the rest, is absurd and unworkable. There would be an immediate complaint, and with reason, that it was not fair to the other competitors that the official architect, with his special advantages of position, should be arrayed against them.

Syndicate," reported in the *Builder* of November 17, which appears to us a little inaccurate in two respects. In the first place the paragraph states that the London County Council had given a consent to carry the building to the height of 80 ft. It is to be observed that under sect. 48 of the London Building Act, 1894, the consent is only required where the building is to exceed the height of 80 ft.; and in the case in point leave had been given to carry the building to 110 ft. and 120 ft. In the second place our contemporary treats this case as a decision by the Tribunal of Appeal that, no question of construction being raised, the Tribunal had no jurisdiction to hear a case only involving questions of light and air. The facts of the case, we submit, do not bear out this assumption. It was argued that raising the building to this height would affect the sanitary condition of the police-station, where policemen slept, but it was expressly stated that no question of law was raised by the case; and the question was simply whether the London County Council had rightly exercised its discretion. Thus the question of law assumed by the *Law Times* to have been decided was not adjudicated upon by the Tribunal. Subsect. 2 (*a*) of sect. 48 gives the owner or lessee of any building or land within 100 yds. of the site of any intended building, who may deem himself aggrieved by the consent to raise the intended building to an exceptional height, the right to appeal to the Tribunal of Appeal; but the Act is silent as to the objections which may be entertained by the Tribunal. The question of light and air would seem to enter into the inquiry as to whether consent should be given to raise the building to the exceptional height, but not, as in an action for light and air, with a view to determining whether the particular complainant had sustained damages as for a nuisance.

The Commissions and Bribery Prevention League.

AS SOME of our readers no doubt know, the Prevention of Corruption Act comes into force on January 1 next. This Act makes it illegal to give to an agent or for an agent to accept anything in the nature of a commission for the purpose of influencing such agent in regard to his principal's affairs. For the purpose of educating the public on this subject, and of assisting to enforce the Act, a body is in process of formation called the Commissions and Bribery Prevention League. It is obvious that a higher tone in business in regard to the offering or taking of commissions will more effectually prevent the evil aimed at by this Statute than the Act itself, which is not one easy to enforce. We hope that both the architectural and building professions will do what they can to assist the work of the League, either by the affiliation of particular bodies or by joining it. The interim committee already contains several influential names, and we should like to see on it eminent representatives of the two above-named professions. A body such as this may materially help by taking up clear infringement of the law, by making its provisions and working known to the public, and, above all, by showing the evils of secret commissions.

Roads on Building Estates.

A SOMEWHAT interesting contention was raised in the Chancery Division last week in what was said to be a test case in connexion with the sale of a building estate—"Holmes *v.* Wenham." The plaintiff had purchased certain plots on a building estate in Pevensey Bay. The building plan had received the approval of the local authorities, and the particulars of sale contained a statement that no charge would be made to purchasers for the formation of the roads, which were being constructed under contract with a well-known contractor. Before completion of the purchase of certain plots, the purchaser, being dissatisfied with the condition of the roads, obtained an undertaking that the roads, if not completed, should be forthwith finished according to the printed particulars. The plaintiff contended that the roads were unfit to draw building materials over. The defendants relied on this reference in the particulars to the contract, and said that as the contract had been carried out to the satisfaction of their architect they had fulfilled their obligations. The Court held that the undertaking was not limited to the performance of the contract with the contractor, but that the roads should be finished so as to be fit for the immediate purpose for which they were required. The plaintiff had contended that the roads were to be made fit to hand over to the local authority, but the Court did not go so far as that. In the result the damages were assessed on the difference in the value of the plots with the roads finished and the value without the roads, which was estimated at one quarter the purchase money.

Tunnel and Train Ventilation.

ONE of the speakers taking part in the discussion of the paper communicated by Mr. Churchill to the American Society of Civil Engineers directed attention to a point that is far too little considered by the engineers of underground railways, namely, the vitiated condition of the air inside the carriages as compared with that in the tunnels. The speaker in question, Mr. R. P. Bolton, stated that this feature is nowhere more pronounced than in the crowded cars of the New York Subway, where the discomfort of passengers is greatly augmented by the excessive heat due chiefly to the operation of trains. In that particular system of tunnels considerable relief would probably be afforded by effective means of encouraging the movement of air through the trains in winter as well as in summer. In London, however, a good many people object strongly to draughts, and the open-door remedy would scarcely be appreciated by the majority of those using low-level railway lines. Small windows at the sides of carriages are not effective for the purposes of ventilation, and the problem for solution is the adaptation of apparatus that will insure the extraction of vitiated air and its replacement by the less objectionable atmosphere of the tunnels. Mr. Bolton suggested that the dense air requires removal from the lower part of the car interior, but we are not quite prepared to accept this proposition, for the reason that warm breath emitted by human beings always tends to rise at first, notwithstanding the fact that it is highly charged with carbonic acid gas. No doubt, as the gases cool they naturally sink to the lower part of the car, but the best plan would probably be to remove them at the upper level before the process of subsidence has had time to begin.

Holyrood Chapel.

WE are glad to learn that the proposal to restore Holyrood chapel, in accordance with the will and by the use of the legacy of the late Earl of Leven and Melville, has been abandoned. The Earl had made it a condition that his trustees in the matter, Lord Balcarres and Sir John Stirling-Maxwell, should accept the responsibility of supervising the execution of the project. They commissioned Professor Lethaby to report on the state of the building, and his report sums up entirely against it. After describing in detail the present state of the remains, he says:—

"I am of opinion that it would be impossible to restore the ruin for use as a modern chapel without the ancient architecture almost completely disappearing in the process. The present decayed and leaning wall of the nave should not be loaded with a new clearstory and roof, to say nothing of a stone vault. To take it down and rebuild it would be impossible; so much would break up into powder in handling, so large a proportion of decayed stone, especially about the joints, would have to be cut away, so much would have to be discarded when once out of place as too shapeless and unsound.

I am of opinion that an attempt either to add to the ruin without rebuilding it or to rebuild it would be disastrous to it as a great historical monument, and I cannot but earnestly recommend that no such schemes be entered on."

This is the inevitable conclusion from the facts as stated by Professor Lethaby—and there could be no more competent observer. This is quite a different problem from that, for instance, of restoring Dunblane Cathedral for worship, where the walls were sound and it was only necessary to re-roof the building. In the case of Holyrood chapel it is evident that the operation must have resulted in practically transforming an ancient building into a modern one. We were doubtful of the scheme from the first, and feel relieved that it has been abandoned. All that can really be done is to preserve what remains of the ancient architecture from further decay.

Public Monuments, Edinburgh.

A REPORT having been made by Mr. Pittendrigh Macgillivray upon the condition of some of the public monuments in Edinburgh the Municipal Authorities have directed Mr. Joseph Hayes, an architectural sculptor, to carry out the cleansing and reparation of the statues of Sir Walter Scott, Allan Ramsay, George IV., and William Pitt. The latter two were sculptured in bronze by Chantrey. The Pitt statue is at the crossing of Frederick and George streets, that of George IV. stands at the crossing of Hanover-street, in the New Town. The Scott monument was erected in East Princes-street Gardens in 1840-4, at a cost of 15,650*l.*, after George M. Kemp's designs, some of the details being adapted from parts of Melrose Abbey. Our number of January 1, 1898, contains a reproduction of Kemp's design taken from one of the lithographs issued to subscribers. The statue, in marble, is by John Steell. Close by are the Black and Wilson

monuments (by Steell); and not far distant in West Princes-street Gardens, by the corner of the Royal Institution on the Mound, is the marble statue, also by Steell, of Allan Ramsay, the gift in 1865 of Lord Murray, a relative of the poet. A proposal is made to complete the National Monument on the Calton Hill for the Scottish National Gallery. Calton Hill belongs to the Corporation, who, it is stated, are willing to give a site there for the contemplated gallery. The monument consists of but twelve Doric fluted columns and their architrave, raised upon a stepped stylobate, the west end of what was intended to constitute a memorial, on the model of the Parthenon, to Scotsmen who fell at Waterloo. The columns are of Craigleith stone; the masonry has, it seems, somewhat suffered from the weather.

Changes in Aldersgate.

THE old-established Castle and Falcon Hotel, on the east side of the street, at the southern end, will soon be pulled down, and the freehold site of the adjacent Falcon-square Chapel is offered for sale, or will be let for building purposes upon a ninety-nine years' lease. The chapel stands on the north side of Falcon-square, with a return frontage to Windsor-court, Monkwell-street; the site extends over 5,580 ft. superficial. It was erected by Dr. Bennett as a branch of the Silver-street Chapel, taken down in 1869. The property was withdrawn from sale in last January, no biddings being made in response to the auctioneer's suggestion of a price of 2s. 9d. per square foot for letting the land under a lease. Close by is Cloth Fair, where some further improvements for widening purposes are about to be carried out by the Corporation, involving the alteration of the rear portion of No. 60, West Smithfield, by the removal of the upper floors which project over Cloth Fair, and the sustaining party-wall. Though much changed during recent years Cloth Fair yet retains some of its curious and picturesque features, in the shape of wooden and plastered overhanging houses, whereof one or two examples are illustrated in the *Builder* of January 14, 1882. The name is derived from the resort thither of the clothiers of England and London drapers, together with French and Flemish merchants, who kept their stalls within the precincts of the Priory of St. Bartholomew-the-Great under a grant, *temp.* Henry I., of "free peace" to all who frequented the fair of St. Bartholomew. The fair and its privileges were subsequently shared by the Corporation and Lord Rich in the middle of the XVIth century, by which time the traffic there in cloth had greatly dwindled. Lord Rich's inheritor, Lord Kensington, sold his interest to the Corporation in 1830, and fifty years ago Bartholomew Fair ceased to exist. In his "Every Day Book," vol. i., Hone gives a detailed account, with wood-cuts, of the fair (in 1825) and the Court of Pie Poudre, which was proclaimed by the Lord Mayor at the gateway, of Transitional date, leading into the Priory precincts out of West Smithfield. The Court of Common Council have further undertaken to widen the thoroughfare by setting back the frontage of Nos. 35-41, Little Britain, a locality which commemorates the town-house of John, Duke of Bretagne and Earl of Richmond, *temp.* Edward II., and famed for its booksellers' shops during the XVIIth century. Washington Irving, in his "Sketch Book," has written a charming description of the houses and their occupants in Little Britain and Cloth Fair.

The London Institution.

THE lecture on the City Churches at the London Institution on Monday afternoon, by the Rector of St. Lawrence Jewry, turned out to be not so much architectural as historical, the lecturer going into the outlines of the history of the most important City churches and their sites from the earliest times in the known history of London. A number of photographs were shown by the lantern, some of them from drawings and engravings of churches which no longer exist. Mr. Barras is thoroughly up in the historical side of his subject, and gave some very interesting abridged quotations from ancient documents, especially from one or two of the charters of that high-handed monarch William the Conqueror, whose documents breathe a spirit of peace and goodwill to men with which his actions were oddly out of keeping. Lectures of this kind are very useful in leading people to think of and to realise the past history of the sites they know so well, and the significance of the familiar names. How many people realise that St. Martins-le-Grand, now only connected in their minds with the General Post Office, was the title of a great ecclesiastical establishment as far back as the XIth century? How many even realise that Fenchurch-street Station takes its name from the "Church in the Fen," outside the old walls. There were one or two omissions in regard to architectural fact; in showing the view of old St. Paul's it should have been mentioned that the portico was Inigo Jones's much later addition, and it should also have been mentioned that the remarkable collective view of all Wren's churches (received with much applause) was the work of Cockerell.

Old Kensington.

IN connexion with the Borough Council's scheme of improvements lately undertaken for widening High-street, Hornton-street, Campden Hill-road, and Phillimore-mews Sir Walter Phillimore agreed to surrender to the public 13,000 ft. superficial of his land along the frontage of Phillimore-place. The terraces were built in three blocks facing the main road and standing to the east and west of the south end of Argyll-road by William Phillimore, whose father Robert had laid out in the closing years of the XVIIIth century Lower Phillimore-place (East). The terrace houses were designed with somewhat uncommon elevations, having large square ornamented panels beneath the upper window-sills. No. 24, in the western block, was the home in the interval 1811-24 of Sir David Wilkie, who there painted his "Blind Man's Buff," "Chelsea Pensioners," and "Village Festival." Wilkie removed thence to Shaftesbury House in The Terrace, on the opposite side of High-street, between the Adam and Eve and Wright's-lane. The Terrace and the large gardens in the rear were cleared away for a block of residential flats thirteen years ago.

Silver at the Leicester Galleries.

IN two of the rooms at the Leicester Galleries there are on view cases containing silver work and jewellery by Mr. and Mrs. Nelson Dawson, a collection which quite keeps up the reputation they have acquired for artistic feeling in this class of work. There is no numbered catalogue, which makes reference rather difficult; but among the things we specially noticed is a silver centre cup on the upper shelf of one of the cases, very refined in its gently-curved lines, and a set of what might be called, if it is not a Hibernianism, silver wine-glasses, with a bit of jewel ornament on their stems. Silver cups for wine are little used now, but they have a kind of poetic association with them—

("Go fetch to me a pint of wine
An' fill it in a silver tassie")—

and people who can afford it may like them for a change from glass. A necklace in one of the cases is a charming example of design which comes very near to the use of natural flower forms, but just keeps clear enough to avoid realism, and is a beautiful and rather novel ornament. We were interested in some small silver-mounted cups of ivory, in which the slight curve of the actual tusk is left, instead of the ivory being cut away to make a factitious straight line. Also in two cigarette-holders made from black rams' horns, which are supplied with two silver feet near the thick end, the lid forming a most effective-looking mouth. As *objets d'art* of the fanciful or semi-grotesque type these are very good. They are the kind of thing Burges would have enjoyed.

ROYAL ACADEMY STUDENTS' DESIGNS.

THE designs of the students of the Royal Academy, sent in for the various prizes, were open to public view at Burlington House on Tuesday.

The architectural Travelling Studentship of 60*l.* has been won by Mr. William Harvey; the subject being "A Design for a Town Church." The site given was an irregular four-sided figure, narrower at the west than at the east end, with one oblique side, thus giving an opportunity for a widening effect of the interior eastward. Mr. Harvey has worked the plan so as to get a symmetrical interior effect in the principal lines, roofing the western portion with a small dome and the wider portion westward with a larger dome which forms the principal feature in the design. The dome is a single one, on the same lines externally and internally, and is roofed apparently with solid slabs of stone or marble tiles shaped to the curve of the extrados. The style may be called a Byzantinised classic, with a tower designed on very square and severe lines, but it is effective and shows some originality, and the whole design is dignified and monumental in character. As we so often notice in these students' designs for churches, the space allotted for the organ is absurdly inadequate; an organ which could be got into that space would hardly be heard in such a large church. The author has not had much to fear from the two other candidates, whose designs, more florid and pretentious, are quite inferior. Mr. Harvey also gains the 15*l.* (first) prize for "Drawing of an Architectural Design." This is a kind of triumphal arch, but not of the orthodox Classic type; the lower portion is occupied by a Doric order from the entablature of which one would expect the arch of the central gateway to spring, according to the usual treatment; but in this case the

arch is stilted to a point a good way above the entablature, and carries over it a considerable erection of stepped pedestals and statues, which seem a little too much in the air, and the upper part of the erection entirely overweights the order, which hardly seems to belong to it. The author deserves credit, however, for having aimed at something new and original. Mr. A. H. Belcher gains the second prize of 10*l.* for a very quiet and pleasing design for "Entrance Tower and Gateway to Almshouses," with some agreeable decorative detail applied in a rather original manner. The design for a triumphal arch submitted by another competitor (No. 128) for this prize has merit, but the erection above the attic is rather too heavy and overbalances the composition.

The 25*l.* prize for an architectural design is gained by Mr. F. J. Watson Hart, for a design for a triumphal arch, on the old Roman lines; it shows no originality, but is correctly carried out and the sculpture well put in. The first of the two silver medals for "A Set of Architectural Drawings" is gained by Mr. Sidney W. Davis for a beautiful and delicately executed set of measured drawings in pencil of the Hall of the Brewers' Company; Mr. A. E. Bullock gains the second medal for drawings of the same subject, but there is a wide difference between the first and the second set. The silver medal for "Architectural Design with Coloured Decoration" is gained by Mr. A. A. Carter, the subject given being a pavement for the entrance vestibule of the Royal Academy. There are two other competitors, but there is no comparison between their designs and the prize one, which is the only one with real merit; in No. 148 the oblique lines of lessening circles from the centre to the angles of the panels have a very ugly effect; and the other (150) is mere commonplace, and hardly worth calling design. Mr. Carter appreciates the importance of strong bounding lines to the panels or spaces in work of this kind, and his smaller decorative detail is very good and refined. We should be glad to hear that the author was commissioned to carry out this design; it is quite worth it. The prize for perspective goes to Mr. A. E. Brooker for a carefully studied drawing of the Hall of the Charterhouse, in which the details of the perspective of the roof are very correctly and learnedly drawn. One is surprised, however, to find, year after year, that there are so few entries for the architectural prizes.

The Armitage prize for a monochrome sketch for an oil painting—subject, "Joseph Interpreting Pharaoh's Dream"—is won by a lady, Miss May D. Maltby. Her picture is very dark, some of the figures being almost reduced to silhouettes; the composition has no doubt won the prize for it; this is dramatic and effective; Pharaoh and his attendants are grouped together to the left, and Joseph stands alone, separated from them by a considerable space. The second prize goes to Mr. G. H. Short for a very slight and sketchy design containing only the two figures of Joseph and Pharaoh, the former kneeling, the latter leaning forward on his seat and listening intently. There is the making of a picture in this, but it might be rather difficult to determine whether some of the others were not equally meritorious. On the whole, the general merit of the numerous sketches seems above the average.

The subject for the design in the round in sculpture is "Abraham about to Sacrifice Isaac." The prize of 30*l.* is gained by Miss Millicent Wadham, whose group is very well composed, and it is restrained in expression. In the work of Mr. Blundstone, who gains the second prize (or would have gained it had he not been disqualified by having gained it in a former year), there is rather more of sentiment, in the figure of Isaac especially, but it is not such a closely-knit whole as the prize design. Some of the models are rather over-dramatic and stagey, in the attitude of Abraham especially; but in the main they are an interesting set, and show a considerable amount of ability for future development.

The silver medal for a "Design Containing Figure and Ornament," is well gained by Mr. G. D. MacDougald for an arch design with bas-reliefs in the spandrels. The figures in the spandrels are apparently meant to symbolise The Fall and its consequences; on one side a winged figure offers Eve an apple, on the other side a winged figure shows a death's head or skull to Adam; at least we take it that the female and male figure represent Eve and Adam. One very great merit in this model is the complete way in which the figures fit and fill up the spandrel, without any appearance of forcing their lines into the space. It is in this respect more particularly that this design is superior to the others, all of which are more or less good. The prize for an "Original Composition in Ornament" should in our opinion have been withheld. Mr. Lessore's panels are no doubt far superior in delicacy of execution and in general ability to the two other designs, but they are not "ornament," they are models of natural foliage in low relief. The other two, we admit, are rather commonplace, but they are "ornament" properly so called; the prize one is not.

We do not know what the Academy have been about in their award of the Creswick prize. The subject given is "Sky Effect over Meadows and River, with a Bridge in the Foreground." The prize is given to Miss M. Robilliard for a picture which is heated and unnatural in colour, and technically out of the programme, since the bridge is not "in the foreground," but in the middle distance. The general merit of the landscapes submitted for this prize is higher than usual, and the one to which the prize has been awarded is in our judgment one of the poorest in the collection, and we are not alone in thinking so. Among those which deserve much praise are Nos. 30, 32, 37, 39, and 42; the latter, an upright, is one of the best composed of all, and we certainly far prefer it to the prize one.

The prize for the Cartoon of a draped figure is gained by Miss Joanna Fry; the subject, "A Female Figure in Classical Drapery Carrying a Pitcher." Miss Fry's figure shows the most ability in drawing, but it is too disturbed and tumultuous in line for our liking; as if the drapery were all blown about in the wind. Nos. 16 and 18 are good figures; No. 20 pretty though a little too sentimental.

The subject for the picture for the decoration of a public room (which we always think the most interesting problem of all) is a verse from the Psalms—"The singers go before, the players follow after; in the midst are the damsels playing with the timbrels." It is a capital subject for a decorative picture, suggesting both movement, composition, and colour. The one to which the prize has been awarded, by Mr. Caron Oliver Lodge, is astounding in a way. It is undoubtedly the cleverest and most original among the designs, but it loses the opportunity of colour presented by the subject, for there is little colour in it; and as an illustration of a verse from the Jewish Scripture it is preposterous, for it is completely Pagan; it represents a group of nude dancers and singers, or if not nude, only quasi-robed in diaphanous drapery; a kind of idea wholly at variance, if not with the text itself given, with its context "It is well seen, my God, how thou goest," etc. There is genius in the design, and a kind of vividness of imagination which has something Blakian about it; but we do think that prizes should be awarded for a design which illustrates the subject given, not for one which evades it; it is hardly fair to the other competitors otherwise. We must admit that the other designs on the whole are not so good as we have sometimes seen. No. 7 is clever both in design and colour; No. 8 good in colour but commonplace in design; No. 10 shows good colour.

The large collection of Life Studies is exhibited in two rooms with notices up—"Studies from the Nude," to warn off Mrs. Grundy. These represent a great deal of conscientious work, but are not calculated to promote the feeling for beauty. Even among the studies from the female figure we could only see two, seated figures, which could be said to have any beauty of line. Of course the object of life studies is knowledge of the make and mechanism of the figure; but somehow Mulready contrived to get a great deal more beauty into his life studies than one can see anywhere here.

"JEWISH SYNAGOGUE, MANCHESTER.—A synagogue is to be erected at Higher Broughton, Manchester, at a cost of between 5,000*l.* and 6,000*l.* Mr. Delissa Joseph, architect, of London, has prepared the plans.

LONDON TOPOGRAPHICAL SOCIETY.

THE eighth annual general meeting of this Society was held at Burlington House on Tuesday, under the chairmanship of Mr. T. Fairman Ordish.

Mr. Bernard Gomme (Secretary) read the Report, which stated that the membership of the Society steadily increased, and was now 220, of which fifty-five were public libraries, schools, and institutions. During the past year the third volume of the "London Topographical Record" had been issued, which contained Mr. Head's account of demolitions in St. Marylebone. The Council had put in hand as a publication for 1906 the first three sheets of Hollar's "View of London, 1647."

Mr. Lewis Coward, K.C., proposed the adoption of the Report, and this was seconded by Lord Belhaven, who suggested that they might well consider whether it was possible to reproduce in colour some of the oil paintings of views of London of 100, 200, or 300 years ago.—The Report was adopted.

On the motion of Mr. G. T. Whiteley, a hearty vote of thanks was passed to the retiring Council and officers of the Society.

The Chairman proceeded to give an address on "London as Seen by Shakespeare," and said that if in these days, when the achievements of science surpassed the dreams of fairyland, he could be vouchsafed the fulfilment of three wishes in regard to this subject, he would say: "Show me Londinium—London as a Roman city, an outpost of the great Roman Empire. Then show me London in the reign of Henry VIII. before the dissolution of the religious establishments. Finally, show me London as Shakespeare saw it." Of the first of these phases they had heard much that they would not readily forget—the address of Mr. Philip Norman at the last meeting, when he described the ancient defensive walls of London, and in the previous year from Mr. Hilton Price. Of the second and third phases to which he had alluded, viz., monastic London and London as seen by Shakespeare, he thought his aspirations had been realised. The story of a great city resembled the history of a people—there was constant movement, perpetual change, but identity remained under all mutations. The impulse that changed the aspect of London after the Reformation was the force which worked out in the extension of a great commercial centre, leading to the congestion which necessitated the great improvements which had transformed London within the recollection of many now living. So one period stood related to another, and ancient buildings were the witnesses and the symbols of the organic unity which ran through the centuries. They saw this when they contemplated a series of maps and views of London and noted survivals from period to period. Historic unity was declared, too, in the ancient buildings happily still standing at the centre, from which had radiated the great cobweb of modern London. The reign of Queen Elizabeth, like that of Queen Victoria, was a time of expansion and change reflected in the topography of the capital. There was no London Topographical Society in "the spacious days of great Elizabeth," but the changes which then took place were recorded more fully and more completely than had yet been possible in respect of that period of incessant change and ever-increasing expansion which separated Georgian from Edwardian London. John Stow, who performed this inestimable service, was born in 1525, and the first edition of his "Survey of London" was published in 1598, when he was seventy-three years of age, and the second in 1603, when he was seventy-eight. In his book on London, the compilation of which was the occupation of his later years, he stored the recollections and observations and investigations of a lifetime. He remembered the priories, monasteries, abbeys, and nunneries of the ancient religion, and described them for us as they appeared in the days of his youth. In his selection of anecdote he was guided by the historic sense with which he was so liberally endowed, so that anything he wrote was of value. As distinguished from the history which he gave, Stow's actual survey extended in time from the latter years of the reign of Henry VIII. throughout the reigns of Edward VI., of Mary, and of Elizabeth to the opening of the

reign of James I. During this long period there were artists—draughtsmen, chart-makers, and engravers—who employed their skill in delineating and portraying the world-famous city that London had become. Some of these had survived, and the elucidation and the reproduction of the best of them had from the beginning been one of the principal objects of their Society. The series of pictures to be thrown on the screen would show what had been accomplished. He would like to see added the plate in which by means of two juxtaposed pictures Hollar illustrated the devastation of the Great Fire, when the London chronicled and described by Stow came to an end. There had been editors of Stow's survey who failed to recognise the limit set by the Great Fire, till the late W. J. Thoms, by representing the survey as it finally left the hands of Stow in his second edition of 1603, restored it to its true position as an Elizabethan document. Their Society could claim to be the first illustrators of Stow, and their publications enabled them to envisage London as it was when Stow was at work and as seen by Shakespeare. The drawing by Van den Wyngaerde took place in the first rank of evidential value. It was unsigned and bore no date, but it was obviously a sketch of the aspect of London from a certain point. The first plan of London issued by the Society—a reproduction of the engraving by Hoefnagel in the *Civitates orbis Terrarum* of Braun and Hogenberg—was apparently coeval with the Wyngaerde drawing. The picture and plan should be studied together, for they represented the London of Stow's earlier recollections. In both the central feature, St. Paul's, appeared with its beautiful spire which was fired by lightning and destroyed in 1561. Of London as seen by Shakespeare the pictorial and cartographic illustration was vastly more complete. When Shakespeare arrived in London Stow was over sixty years of age, and it was probable that his work on his survey was already well advanced. The pursuits of a lifetime had produced their effect on his mind; he lived in the past; his observations of what existed around him were related to the ancient glories and the civic dignity of London, and he gave no hint of the great and vital event which occurred in that closing period of the reign of Elizabeth when the genius of Shakespeare was born. There was no echo of the fame of Shakespeare in the second edition of 1603, and the explanation, he believed, was the pre-occupation of Stow—his years and his poverty. From what he wrote of the Bankside it was apparent that he made no attempt to bring his account up to date. Even as it stood in the earlier edition the account was evidently much earlier, for he did not mention Henslowe's Rose Theatre, which was shown in Norden's map of 1593. The relation of Stow to Shakespeare was a discovery of our own time. The late J. O. Halliwell Phillips, in his quest concerning the sites and positions of the playhouses of London in the time of Shakespeare, exhausted what little there was in Stow on the subject, and he found more to his purpose in the maps of Agas and Norden. After him came Dr. Furnivall, and the late Mr. Rendle, the historian, of Southwark, was set to work on the history of the Bankside and the theatres there, with results of permanent value in that obscure and fascinating subject. The tide of enthusiasm caught Mr. Wheatley, who contributed notes on Norden and his map of London. It was in the midst of all this work that their Society came into existence. From the Norden map published by the New Shakespeare Society, the next step was the publication of the Wyngaerde view by this Society. Addressing them four years ago, Lord Rosebery suggested that the Society should have a field day in London to visit some places of historic interest. He would plead that when that excursion was undertaken it should have as its objective the church of St. Andrew's, Undershaft, and Stow's monument there. Let their way be by Bishopsgate, where they could visit the still existing Crosby Hall; thence to St. Helen's Church, which was standing in the days of Queen Elizabeth, a relic of the ancient nunnery. In that church they would find a memorial window to commemorate the fact that Shakespeare was a denizen of the precincts. They would thread the narrow ways along which the buildings grew up, as they filled all the space of the gardens as far as St. Andrew Undershaft. There at Stow's monument let the Society pay its formal tribute of homage to the memory of the patriotic citizen and devoted student who laboured all his life at the history of his country and the record of London, and who died aged, poor, and in neglect, but who, nevertheless, without pre-vision of what his portrayal of London would mean to future generations, gave them his immortal survey.

At the conclusion of Mr. Ordish's address a number of views of old maps republished by the Society were thrown on the screen, and Mr. Ordish pointed out the various buildings which existed in Shakespeare's time.

On the motion of Mr. Wheatley, seconded by Mr. Norman, a vote of thanks was passed to the Chairman.

MAGAZINES AND REVIEWS.

In the third article on "English Provincial Museums" in the *Burlington Magazine*, the writer touches on the subject of classification. He admits that great advances have been made in this respect; that "the portrait of an XVIIIth century mayor no longer hangs under the Polynesian shield and behind the stuffed flamingo"; but he complains (truly enough) that things good and bad are labelled and displayed side by side with no guide to the learner who comes there for suggestions. The question may be asked, Why hang bad things at all? to which of course the answer is that they may be part of the history of the art or of the particular artist. The author suggests that what has been called the "Boston idea," of exhibiting only a portion—the harmless portion, we suppose—of a collection, and keeping the rest shut up and only accessible to students, is the ideal for a provincial museum. May not this, however, prevent people from becoming students of the history of an art, who might become so? A cheap but well written and authoritative *catalogue raisonnée* would seem a better way out of the difficulty. A corporation anxious to aid the study of art might even give away the catalogue, or charge a nominal price, to encourage intelligent study. Where a provincial town has a leading art-industry which is an important part of its life, we quite agree that the illustration of the best productions of such industry should be the central object of the museum.

In the *Art Journal* Mr. Claude Phillips writes an article on Dosso Dossi, partly in reference to a small panel picture of a Pietà, attributed to him, and which the author had come across in a London auction room a year ago, where it was labelled "Old German School." Mr. Phillips recognises in it the work of Dossi, and certainly the character of the illustration quite corresponds with the idea of Dossi as the "freakish irresponsible romanticist." His Pietà here engraved is one of the oddest of religious pictures; the figure of the dead Saviour treated with a good deal of pathos, the accompanying figures almost absurdly theatrical and forced in their attitudes and expressions. An engraving also of his almost childish yet admirably composed picture "The Spells of Circe" is given. The question of the real portraiture of Dante is discussed by Mr. Addison McLeod. The most important point brought out in the article is the fact, which one or two quotations from the "Purgatorio" seem to put beyond a doubt, that Dante in his middle life wore a beard, though no portrait, whether genuine or not, shows him with one. Mr. McLeod does not dismiss the Bargello portrait, once too hastily accepted as Giotto's—"the wish was father to that thought"; he does not even deny that it might be by Giotto, or if not, by one of his pupils, and he thinks it, moreover, the most probable likeness we have of him in his younger days. But the idea of the Dante of the Commedia as a smooth-chinned man must, it seems, be given up. The frontispiece to the number is a reproduction of a fine picture by Israels, under the title, "A Cottage Madonna."

The *Berliner Architecturwelt* is devoted almost entirely to an article on modern German country houses, condemning the lack of taste and individuality displayed by clients who insist on dwelling in wearisome replicas of bygone styles, which in no way reveal the personality of occupier or designer. The writer then tells us what a home should be; reposeful, simple, and forming part of its surroundings. As an example of an ideal country house he gives a detailed description, with thirty-one full-page illustrations, of Villa Spindler, an architect's home near Berlin. The greatest care has been taken that the house, internally and externally, and the grounds, may form an architectural whole, the eye being led gradually from house to open loggia, from loggia to arcaded terrace, and thence to velvety lawn with shrubs and trees beyond. The very coarse rough-cast walls and sandstone basement of the building are continued into the entrance-hall, but modified into a fine ochre-tinted rough-cast over a mouse-grey tile plinth. This colour scheme is carried on in the large hall with dull gold paper above a high dado of stained ash, while the chimney-piece is a fine design of yellow marble reaching to the ceiling, supported by Dutch tile jambs surrounded by bronze. The dining-room recalls a method of decoration rarely used; a series of Rhenish landscapes carried out in Intarsia forming a frieze to the high dado of fumed oak. The painted and modelled ceilings, the furniture and fittings, are in the *art nouveau* style, and purposely designed for the place they occupy. Should their forms not meet with universal approval, they at least show a striving on the part of the artist to realise his particular ideals.

The *Architektonische Rundschau* has for its literary feature an essay on "Kleine Sommerhäuser in Harzen," which might be Englished as "Week-end Cottages in the Harz." These, in the numerous pretty little illustrations, take the most unexpected and picturesque forms, and are well worth study. The article is by Professor Lübke, of Brunswick. The coloured plates in this issue add many more illustrations of the same subject. Among the larger buildings illustrated is the Werner-Siemens Gymnasium at Schöneberg (Berlin), by Herr Paul Egeling, an original and powerfully treated building, though the detail is odd to English eyes.

Probably there is no name of a town whose general associations are less Roman than Paisley, yet in the *Antiquary* an article by the Rev. J. B. Sturrock, "Roman Paisley," recalls the time when there was undoubtedly an important Roman fortified camp on what is now the very heart of Paisley. The author supports the opinion that this Paisley camp was the one known in Roman days as Vanduara. There is a little dispute on this head among the archæological specialists on the subject, for which we refer the reader to the paper itself. Mr. Sieveking contributes an article on the interesting subject of "English Pageants of the Streets," of which the Lord Mayor's Show seems now to be the last lingering relic. But probably the mediæval pageants were a good deal better worth seeing.

The *Nineteenth Century* contains an interesting article by Mr. G. A. Simonson on "Guardi," in which a good deal of information is summed up in a comparatively brief space. The view taken of the great artistic importance of Guardi is one we should hesitate to accept. There seems to be that kind of re-action in favour of Guardi just at present, which is one of the common habits of present-day criticism; an artist who has been somewhat neglected is suddenly taken up, as a kind of fashion, and his importance is exaggerated accordingly. We are certainly not persuaded that Guardi was the superior of his master Canale, commonly called Canaletto. The latter no doubt has been over-rated, and is now beginning to pay the penalty of it; but we still think him superior to Guardi. He has more delicacy in the painting of architecture, and more breadth of aerial effect. The Rev. H. Maynard Smith contributes a fanciful article on "The Study of Furniture"; not "study" as we should understand that word, but a poetical reverie on the great associative interest of furniture, as to which we entirely agree; also that it is more interesting and valuable than architecture, because it can be carried about and is not fixed to one place—in which we do not agree. Furniture is only a kind of delightful toy in comparison with architecture.

The *Century* contains one of those absurd idolising articles about Whistler, which we meet with everywhere now—"With Whistler in Venice 1880-86." The writer, one Baeher, succeeds in giving a very strong impression

of Whistler's affectation of greatness, his self-conscious habit of talking about himself in the third person—"I will tell you what Whistler will do," etc., etc. The impression produced (though evidently not intended by the devout worshipper) is that Whistler considered himself rather in the light of a joke. Some of the details as to his method of work in etching are of interest. Mr. Timothy Cole produces a remarkably fine wood engraving of Murillo's "Conception" in the Prado Museum; and the "American Artists Series" is represented by a very charming *genre* picture by Mr. Francis Day, under the title "The First Lesson." The same number contains an article by Mr. W. H. Taft on "The Panama Canal: Why the Lock System was Chosen." The principal reason seems to have been to keep out of the way of the turbulent and erratic river Chagres. The proposed locks will throw everything else of the kind into shade as far as scale goes; but the article is not illustrated with any such sections, etc., as would enable one to form any opinion from it as to the practical character of the scheme.

In *Harper* an article on "The Tiber," by Mrs. Van Vorst, is accompanied by some beautiful illustrations by Mr. André Castaigne, who attempts among other things to give an idea of "the banks of the Tiber under the Cæsars." This is not the best of the illustrations; but "Rome and the Tiber from Via Sabina (Mount Aventine)," and the island of St. Bartholomeo and its buildings, as seen in the summer dawn, are beautiful examples of delicately executed book illustration.

The *Revue Générale* (Brussells) contains a picturesque article by Comte de Villermont on "Les Ruines de Pœstum." He gives a vivid impression of the strange effect on the mind of these dead temples of a dead worship, seen amidst all the renewed life of spring and by contrast with the bustling littleness of the small modern town of Pesto.

THE ART OF DRAWING.*

By T. RAFFLES DAVISON.

THE art of drawing has been badly misjudged, and its value very much discounted in recent years. It seems at first sight curious that this should be so, for never have there been so many able draughtsmen and artists as there are to-day, and never has there been so much need for their services. In whatever direction of artistic industry you look you will find artists of first-rate ability who can draw. In painting, architecture, decorative work, and journalistic work of all kinds you may see the art of drawing carried to a great pitch of perfection. It is unnecessary to mention names just here, but anyone who loves the art of drawing and is interested in its progress and history is familiar with many names distinguished in the art. There is also in every direction the most obvious need for good drawing. Not in architectural competitions alone is good drawing a desideratum, but I maintain it is to be desired at every point in an architect's work. In the immense industries of a decorative nature it is imperatively required. But apart from the architectural world one of the most obvious uses for beautiful drawing is in the decoration or illustration of publications, serial or otherwise. Pictures make a universal appeal and cannot be disregarded in the successful make-up of a book or a journal. And in these days of feverish activity in publication there should be the most urgent and widespread demand for good drawing. But the beautiful illustrative work issued about the middle of the XIXth century, though it is highly valued by connoisseurs and collectors, finds no similar market to-day. Nearly anything is good enough for illustrated publications to-day, and the work of the unknown Bill Sykes or Tom Jones ranks equally well with the masterly drawings of a Fred Sandys. The only really high standard of merit I can discover is that set by two or three American magazines, in which one hardly ever sees anything that is not first-rate of its kind. In the most artistic of our popular magazines published here the lapses of quality published side by side with the best are lamentable. Sheer quality of drawing is no more appreciated by the public than are the best qualities of architecture. The demand for really first-rate drawing hardly exists with the general public. The light of the good drawing cannot shine through the impenetrable shadow of British philistinism. Yet the drawings by George Montbard and Samuel Read of English country houses in the *Illustrated London News* were far truer to the artistic impression of the architecture than the best photographs that ever were given. The drawings of old English homes by Nash are far truer to our sympathies and feelings as regards our magnificent old buildings than are the wonderful photographs in Mr. Gotch's Renaissance. The splendid illustrations of St. Paul's which Mr. Pennell did in *Scribner's* years ago remain to me a far more vital realisation of that fine building than any photograph possibly can.

Now, drawing is a pretty ancient business, and it is a very great many years since the Greek artist proved his ability to an astonished audience by drawing a perfect circle, yet I very much doubt if he or any of his contemporaries could set down the essential facts of an old building with the ease and certainty of one of the clever members of our architectural associations of to-day. We have absolutely no record to show that the best of our Pugin students have ever been equalled in past ages in their special ability in the art of drawing. There is something in this beyond the mere emulative ability which we share with our friends the monkeys. A tradition has grown up which has led students along a well-lighted path, so that, given the natural instinct, they begin with a better equipment each succeeding year. We need to bear this in mind for our encouragement, not as regards drawing alone, but also as to architectural effort. Many architects assume that you can never do anything better than did the Greeks, but that is a dangerous position to take up, and the history of art would seem to prove that the only wise method is to live one's own life and endeavour to carry our art forward on the lines of current tradition.

One can almost imagine that the crossed lines which have recently become a development of draughtsmen's feelings will lead to something when they have become sanctified by tradition. For a long time past it has doubtless troubled the adventurous spirit of a certain draughtsman that the world had been content with merely making lines meet—perhaps he noticed that the lines very often just stopped short of meeting—so he boldly travelled past the precise meeting point, and was no doubt agreeably pleased with the crispness of the result. Now you see plans and elevations with the lines crossing instead of just meeting, and all uncertainty as to where are the exact corners has disappeared. In setting out a building we cross the lines to insure perfect accuracy of measurement, placing the pegs at some distance from the angles, and it is possible that the great-great-grandfather of the draughtsman who began this crossing was a setter-out of buildings, and so it came down in his blood! Whoever began it must feel gratified by its widespread adoption. Little matters like this, of no importance in themselves, go to prove that the imitative faculty in us all is a very important thing to reckon with, and may do much either to improve or deteriorate our work. That is why one looks with such anxiety to the work of our successful men in every field of art, for, consciously or unconsciously, it affects us all. It takes, not necessarily an able architect, but a very strong-minded one, to do work which runs counter to the general appreciation, and one would rank an architect who sends in competitive designs which he knows to be opposed to the taste of the assessor with the courageous and ascetic devotee who prefers to choose his own way to Heaven. Independence of judgment allied to a sound belief in the value of tradition must be the sheet anchor of the artist, but above and beyond all others, of the architect. Without this we might well be appalled at the prospect of doing anything worth looking at, and fall into the lamentable belief that we have come into the history of the world too late.

The art of drawing may be roughly divided into the artistic or ornamental, and the practical, though actually the two are constantly overlapping. Artistic drawing may be defined in two ways: as that which is the means to an end, and that which is the end in itself. With the former architects are chiefly interested, but it is impossible to admit that even in the pursuit of drawing as an art an architect's work must necessarily suffer. So far as I have observed, the most accomplished architects have usually combined some distinction as draughtsmen or painters with their power of design, and those who have not are the exceptions. Now, all sorts of things may be said both for and against the cultivation of the art of drawing by architects. It may very well be maintained that too much devotion to drawing *per se* is liable to distract an architect's thought from his own especial mission, and that it may end in his becoming a very good draughtsman, or colourist, or painter, but a very poor architect. You may also quite fairly argue that drawing is the one rapid and ready medium by which architecture may be designed and understood, and that oftener than not the drawing itself suggests a good deal to the architect, whilst the more an architect makes good drawings of architecture the better he understands it and the more sympathetic does he become in niceties of proportion and refinements of detail. At the same time it would be idle to deny that to an architect the allurement of the art of drawing is sometimes divergent from his architecture. The consolation is that some men are so allured that they end in making very good drawings which are stimulative and useful, whilst they are saved from doing some very bad architecture.

The real thing to consider is how best to develop and express our ideas, how to encourage what talent we have—in short, how to attain the best results possible to us. If a man be more naturally of a sculptor's turn of mind he will look to modelling for the best expression of his thoughts, and it may be true that sculptors would make the best architects—only, unfortunately, they seldom or never do. Modelling is a most valuable aid to the architect, and if our art were a leisurely one, as it ought to be, much ought to be done by modelling. But in practice the architect has to rely very largely on drawing, and the great thing is that he should make the best use of it. If architects would more consistently look upon their elevations as merely upright plans, they would be less deceived by their own drawings, and it is only by a persistent thought of the work in the round that an architect can properly imagine beforehand the result of his work. Of course, there is architecture and architecture. Some architecture is of such a nature that there is really no need to think about it in the round, for it has already been done so often that a study in the round is available all over the land. There is a regulation Georgian cornice that we all know quite well. It is illustrated nearly every week. There are our very old friends, the Classic orders, standing about all over that we may easily count on the result of them when translated from the elevation. The mullioned window and the battlement of a certain type we all know where to find in the round. But it is when we come to the work of an architect who thinks for himself, who is progressive and makes deviations from types, that this study in the round is so essential. But whilst we are speaking chiefly of details we must remember that it is in the main proportions of a building that this study in the round is of the first importance. "Does it really come like that!" says the architect when he sees it for the first time in perspective. Well is it for him if his surprise is *precedent* to the contract drawings.

I have not been able to collect an example of the work of every distinguished artist who has ever lived, but I have borrowed a few drawings which appear to me to reach a high-water level of excellence in architectural drawing.

Of the illustrations lent me by Mr. Griggs, that of Sompting Church is from "The Highways and By-ways of Sussex," just issued by Macmillan. This delightful guide-book by Mr. Lucas contains as good examples of Mr. Griggs's work as are to be found. Some of the landscape outlines are especially charming. The architectural subjects sometimes suffer from the defects of their qualities, and in his New Shoreham Church

*A paper read before the Liverpool Architectural Society on the 3rd inst.

in that book one sees how the very charm of much of his work may lead in certain instances to the least satisfactory results and border dangerously near the look of the photograph.

Sir Aston Webb was the ninth on the list of some forty-two Pugin students, and some of his admirable drawings are here to-day. Of his drawings here, the English ones were done when holding the studentship, and the others were done to obtain it. Mr. Cecil Brewer was a Pugin student in 1896, and the few drawings of his here are enough evidence of his ability, though his good choice of subject, combined with quality of drawing, can only be adequately judged from a large number of them. Mr. Leonard Stokes won the Pugin in 1880, and his drawings of Ely now belonging to South Kensington Museum would be hard to beat; they are kindly lent me here. Mr. Mallows won it in 1889, and delighted everyone by the piquancy and delicacy of his drawings. Mr. Joass in 1893 was one of the most sympathetic and dainty draughtsmen of the whole series, and I am glad to be able to show some of his work. The whole series of Pugin Studentship drawings show a high level of artistic excellence.

The sketches which Mr. Fulton has kindly lent me to show you illustrate his interesting technique. They are divided into two periods of work, those of Italian work being a year later than those from Spain. This is what he calls *elementary* drawing. The intense decorativeness of his drawings you will fully realise, and the way in which he compels your attention to the design and the decorative quality of his subjects is admirable. Yet you cannot help liking the drawings also for their own sake. The drawing of a house designed by Raphael (his one notable architecture achievement), with all its slightness, conveys admirably the dignity of the design. To few it is given to make studies of flowers and foliage like these by Mr. Fulton and those by Mr. Edgar Wood.

How is the art of drawing to be defined? That there is ample room for the display of individuality in drawing is evidenced clearly enough when we recall how, in face of such masterpieces of line as Vierge and others have created, we can still find pleasure in the character drawing of Keene, the elegancies of Du Maurier, the conventional decorativeness of Sambourne, the clear-cut expressiveness of Phil May. There is the loose drawing on one hand, and the tight drawing on the other; there is the submission of the drawing to the subject by the one artist, and there is the brilliant insistence of the drawing itself by the other. Who shall venture to say that one alone sums up all the virtues? One painter of pictures puts all his drawing into his outlines, and another puts it all into his masses. You will find a painter who cannot really draw in detail can yet draw in large masses of colour with great distinction. A painting may emphasise the drawing or it may mask and blind it. This feeling of drawing is to be found in architectural design most emphatically. In one building we are conscious of the drawing and emphasis of outlines, whilst in another our attention is compelled by surfaces and masses only. A signal instance of the latter method was noticeable in some exhibitions of the architectural gallery at the Royal Academy, when Mr. Henry Wilson treated us to masses of building made up by luxuriant passages of colour, wherein any mere question of drawing seemed almost to be forgotten. There is, as you know, drawing which is not really drawing at all, but only blotches of light and shade. There is drawing which suggests a great deal, but actually shows nothing. There is drawing which shows a vast amount of detail, and still tells nothing one cares to know. There is the drawing of the pedant, the drawing of the mechanician, and the drawing of the swaggerer. There is that which was evidently a great labour to produce, and there is that which shows it was a work of delight. There is the drawing of the audacious youngster, who knows little, but dares everything, and the drawing of the old hand, who knows so much he is almost afraid of everything. There is the drawing of the trickster, and there is the drawing of the sincere artist; there is that which charms at first and palls after, and that which pleases one more and more. But hold! you say. You are merely detailing the virtues and vices of mankind and tacking them on to drawing. That is just what I think you must do. You do not judge of drawing differently from other mundane affairs. If a man be vulgar his drawing must be so too, or if refined his drawing must exhibit it. Most people like best a generous, free-hearted soul, and the finest sympathy will go to drawing which exhibits generosity and freedom. You may stand in awe and respect before the classical perfections of academic charm, but tons of it will not affect you like the spirited sketch which sprang from the hot enthusiasm of a creative thought.

The art of drawing, strictly speaking, might be interpreted to mean the representation of form alone. In speaking here of the art of drawing, you will understand I am not speaking of it in that strictly limited sense; but of the art of drawing as it chiefly appeals to the architect or artist, in whatever stage of his career, in whatever media that may be adopted, and in the form of mere outlines or finished effects of light and shade or colour.

In the extreme purity of method and intention which certain architects have recently adopted, there is little room for artistic drawing any longer. These reformers will still, I believe, allow you to make plans and rough elevations for a building, but they must not be such as will lure you on by any suggestiveness of artistry into any further development of your design than you have already imprinted on your mind's eye. We may, however, venture to question such austerity of mien, and by an illustration to discover its mistake. Suppose that in drawing out an elevation you were to get hold of a double B pencil by mistake in ruling a horizontal line part of the way up the elevation, and thus make a line much more emphatic than all the rest at that particular point. Suppose that this extra emphasis at this point suggested to you the value of that much more definition of horizontality in the design. Would not the mere act of drawing, of dealing with drawing for artistic uses, be very valuable in such a case? Suppose you want the effect of modulation of tone, of broken colour, or the like in a building, and are going to attempt it by the distribution or choice of material, does not the art of drawing help the realisation of such a thing, or has it not often suggested it, even in the first instance? Can the want of artistic feeling in a drawing be otherwise than distasteful and harmful to the artist? Can it be possible that an essay in setting forth a building in an artistic way can be lost time to a true artist? It may be as necessary to warn the young architect against the danger of mistaking artistic drawing for good design as it is to remind him that fine clothes do not make a fine man. The art of architecture is not the art of drawing. The character and being of a man is not to be mistaken either for the fashion of his clothes or the mould of form into which nature has seen fit to cast him. But if a man is instinct with artistic knowledge and thought he will be pretty sure to show it in his drawing, just as an ostentatious or careful man will show it in his clothes.

The supreme wisdom of thinking for oneself and aiming to be true to one's own best instincts, is in some considerable danger of being bullied out of one by the numerous guides and counsellors by whom we are surrounded. Since the term "paper architect" was invented, it has led to a most unfair assumption that the clever designer on paper would very likely be a meretricious and careless executant. The fact really is that things are not half enough realised on paper, and far too much is left to chance in a building. I can tell you my experience points to the greatest success where architecture has been well realised in the round. Instead of less drawing being done, there is need that far more should be done. Let me ask how often have any of our modern architects carefully noted and drawn the effects of an overhanging cornice, of the effects of architraves, or mouldings? Let us consider a cornice for a moment. An architect is anxious that the effect of a certain cornice shall be such that a continuous profile of support shall be provided underneath it, looking up at it from the ground level. Now, suppose he sets down in elevation the effect of certain brackets and bed-mouldings which are to give him this result, and never tries the effect in the round. The chances are that the receding spaces between the brackets are of so much relative value and importance that the cornice is not judged by the profile of the bed-mould and bracket, but by the profile of the bed-mould, and recessed portion between the brackets. A cornice with brackets or modillions may form the effect of a fairly solid mass if the spacing and bed-moulds are arranged in a certain way, whilst otherwise an effect of much less solidity may be obtained which may not be nearly so good. You may tell me that a clever architect thinks of all these things, and provides for them. I reply:—I wish he did! Nothing can be more useful to a student (I mean a man of any age) than the habit of noting and drawing the perspective effect of any new arrangement of cornice, architrave, moulding, or pediment, which he sees, and which strikes him as good or bad. The mere fact of drawing it for himself imprints on his mind the effect, whether it is for good or ill. Of course, there are plenty of types of detail which are so familiar to certain architects that the effect is as well known as are the letters of the alphabet. The younger man draws and observes these till he knows what to aim for and what to avoid. But where architecture is a progressive art there may be reason for a good many alterations to a good many drawings.

If you meet with a man who says he has not been influenced by anyone, beware of him. He is not an artist anyway. For one who cannot receive influences, who is not impressionable, cannot have an artistic temperament. Not the influence that comes of sitting poring over the illustrations in the building papers so as to work them up into a competition design, but that kind of influence which may come from the fine frenzy of a drawing by Monticelli, as well as the calm serenity of line of the most refined French artist, from the intimate forcible detail of a Durer, or the exquisite feeling and refinement of Vierge.

If one could imagine an entirely unbiassed and unprejudiced person (if there be such a disagreeable nonentity in existence) listening to the various statements put forth on the subjects of architecture and drawing, one might suppose a great difficulty of decision as to their relation and values. The plain truth of the matter is that there is a great deal too much architecture about architecture, and a great deal too much drawing about drawing. In some sense it is like to the case where there is too much evidence of paint in a painting. Whilst architecture is a very ancient art, so, also, is drawing, and it is quite unnecessary that one should be discredited at the expense of the other. Yet something very like this has been going on, and we have at length arrived at the opinion among a few eclectics that the art of drawing has been doing all sorts of harm to the art of architecture, and that we have at last evolved a number of paper architects whose work is good for little or nothing after it has left the drawing-board. Of course, the reason of this is because we are all too clever nowadays, and unless you can ride a bicycle without the use of your hands, and design a building without the aid of drawings, you can hardly be considered to be really educated. There are some architects nowadays who know exactly how a building of many projections and varying roof slopes and gables will look without the aid of anything but plans of floors and fronts, and who can trust to their flat delineations to turn out all right in the round. Architecture is to them, of course, a study in the round, but they don't need to draw it or model it so, but rely on their keen senses to evolve it in the flat. They do not even need to put up vases or pinnacles or hips to see the effect or to learn by expensive trial how it will come. They are sure of it beforehand. These, of course, are men of genius, and their disclaimer of the need of drawings is a modest acceptance of the fact. The average architect of keen sympathies and high ideals generally wants to pull down a lot of his work when he sees it realised in the round, or, at least, would be thankful if he might amend it in parts, and, in my humble opinion, we shall never get the finest architectural results until it is a matter of etiquette that an architect shall be allowed to make some alterations as the work proceeds. But one cannot help wondering sometimes whether an architect has realised what is

going to be the effect of his many breakings of a main cornice round flat pilasters throughout a long frontage, which, when the projections are only slight, produce a waved uncertain line when seen in end perspective, and destroy the dignity and continuity of line one hopes he tried to get! It looks so like a want of study in the round.

There are many catchwords in the air to-day, and one is the unity of the arts. But is this unity fully realised or acted up to? There is nothing more essential to be borne in mind than the fact that art is one and indivisible. All arts and artists are, or ought to be, bound together by a common link of sympathy. If you happen to be an architect you are not to be shut out from the sympathetic appreciation of other forms of art. On the contrary, the claim of an architect to universal artistic sympathies is inevitable. The painter of pictures cannot dissociate his sympathies from sculpture, or architecture, or decoration, or dress design. But though we accept the theory, we do not half thoroughly put it into practice. That is where I feel that any attempt to belittle the art of drawing in its relation to architecture is so much to be deplored. We all know—I am sure we all must have known once—the evils of too much sweet cake. But we still take it, and it enlivens and brightens our lives. Drawing does more than that. It is not a mere luxury but the very language of art for the architect, and we shall do far greater harm by discouraging artistic drawing than by giving it free scope. You see out of the very excellence which has been attained in the art of drawing this evil has arisen; that its seductiveness has at last frightened all the tough old professors of architecture into a dread of losing their moral balance when they consider competition designs, and students have had to be gravely warned lest in pursuing the art of drawing they will be losing their hold upon the art of building.

To anyone who has considered drawing critically and sympathetically for many years there is a whole world of revelation of character in the varieties of it. I have been lately looking at the clever drawings of a very accomplished man, and I find in them a very vivid rendering of the general facts of architectural character, a graphic rendering of certain broad facts, but a marvellous absence of accuracy in detail and a woeful ignorance or carelessness of perspective. The profile of a stone cornice shot out sharply against the sky was shockingly inaccurate in proportion, and suggested wood instead of stone, and the near arches and bays of the side of a building in quick perspective were the same width as the distant ones. Yet by the very looseness and freedom of the drawing and its sparkle you are charmed, in spite of yourself, and you somehow feel sure this distinguished man knows the building perfectly well, though he renders it so carelessly and inaccurately. Point this out to a publisher, and he will tell you that the public care nothing at all about accuracy; all they want is to be interested. Put before them side by side the real building and the inaccurate drawing, and they will see no difference. This is doubtless why painters with the most profound ignorance of perspective charm their public notwithstanding by other beauties which are of more vital interest to them than accuracy of drawing. You may be sure I do not suggest, therefore, that one should place little value on accuracy, but I wish to emphasise the need for something more than dull academic correctness about one's work. You all know perfectly well that the more faultless a person is the more he is likely to be detested, but it is not the fault or the lack of fault that is the matter of account, but it is the interest of appeal we make to the thought or affections of others which gives us a place in their heart. I knew a little girl who drew the crudest of figures of men and women, and their drawing was perhaps beneath contempt; but she was full of human sympathy, and all her figures lived right through their drolleries of impossible drawing. The young man was wooden, but you could not mistake his adoration of the lady. The lady was rococo, but she was a gracious angel to the adoring swain. These crude drawings were swept from end to end with passages of brilliant colour—purple and green, orange and blue, red and black; one gorgeousness after another enlivened the palette, and the sum total was a fairyland of pleasure. The importance of it all was beyond any accuracy of drawing or purity of tone. May I venture to suggest that Professor Beresford Pite has had less pleasure in drawing and designing his splendid Liverpool Cathedral composition than he had in doing his great drawing of the Soane Medallion twenty years ago? I do not wish to appraise the relative architectural value of the two efforts, separated by a quarter of a century of fine architectural study, but I believe there was more artistic joy to be found in the former than the latter, and, though the latter is a fine result of architectural thought and judgment, the former is even now perhaps a more stimulating and suggestive piece of work.

If you pursue art with a whole-souled devotion and sincerity, if it is a genuine delight, and not a mere affectation or the means to the attainment of position, or fame, or profit, you will have no great cause to look back on your efforts with regret. Your greatest regret will be in the shortness of life. You will have no reason to regret that you have not succeeded in being more like somebody else, however famous or worthy of regard. The greatest satisfaction you can secure will be in having been true to yourself and your own powers. Therefore I would urge you to possess your own soul in artistic ideals. Do not be badgered or hindered by any one man's laws or terrors. If you do not believe in a thing you had better not do it. If a man says you must not draw wavy lines, do not believe him if you have a great belief in them. If you are told not to study the work of John Smith, or try to get architectural suggestion from Swedish wooden toys, do not regard it if you find John Smith and Swedish toys help you. I know men who have found great help from the work of John Smith, and I have seen an accomplished architect drinking in inspiration from a row of wooden toys from Sweden. You must be true to yourself though the heavens falls, or you will do little good in art. Years ago I was regarded in a certain school where I was trying to pick up a little knowledge with grave suspicion and disbelief because of my methods of procedure. And this cutting disbelief in my methods would have chilled me to the bone, but my monitor had the kindness to say: "If it were not that you get it right in the end I could not countenance your methods." That word steadied my belief in myself, and that was what I needed. Enough belief in one's self to find a sheet anchor we all need. This is not to be interpreted as dogmatism and obstinacy in getting ideas and sound instruction. That we must ever be greedily looking out for, but we must not persist in taking mental food that we cannot digest. The great need of this age and every other is truth. But that is not truth which you display in your work when founded on unbelief in your methods. I see Mr. Adshead is down to speak to you on "Characteristics in Draughtsmanship." Now, an intelligent appreciation of characteristics is a great thing. Sympathy counts for much, but you must not let sympathy compel you too far. Out of six clever draughtsmen with fairly distinctive styles there may not be one whose method would quite fall in with your own natural bent. Yet you may learn from all if you will keep true to your own instincts and beliefs.

There are so many aspects from which the art of drawing may be regarded that it is difficult to say which we shall find of the most interest. But, whilst for the architect the chief aim of his life must be architecture, the consideration of the art of drawing of most importance must be that of its value to his professional work. An architect can hardly draw too much, but his drawing should be thoughtful and true, and the less illusion it creates for him the better. It should tend to elucidate design, and not to obscure it, and the less thought given to the drawing, and the more to the subject, the better it will be. But this does not involve any ascetic abstention from the charms of artistic drawing at all, and those who offer cautionary advice against the danger of artistic drawing are likely to create a wrong feeling as to its proper value. You cannot dictate to an artist as to his artistic impulses without endangering their value. And it must always be remembered that the repression of natural gifts tends to destroy that individuality which is the breath of life to an artist. I have sometimes looked over the work of certain artists with a feeling that it was so perfect in its way as almost to exclude for ever the chances of appeal from other work of a similar kind. Then, of course, there has come later the knowledge that the great world of art is wider and finer than man's fanciful limitations, and that in infinitely varied ways the work of sincere artists is always sure of some individual and separate appeal. Take the clever freehand pencil sketches by J. B. Fulton, and note how curiously those uneven, wavy lines give an impression of architectural truth and distinction of artistic vision. Has no one with a trembling hand ever done such drawings before? Assuredly they have, yet these sketches were a fresh revelation of pleasure when they first appeared. You cannot possibly recommend wavy, trembling lines in the delineation of architecture, and for the successful rendering of things whose value lies in precision and definite form; but not only did Mr. Fulton defy your want of recommendation, but he has made you take pleasure in what, theoretically, is a defect. Nothing could seem to lie further apart than the firm solidity and precision of a drawing of an old Gothic building by F. L. Griggs, and the tender, hazy drawings by the late F. C. Deshon. Theoretically, how can we say that either was absolutely right? Architecture is a thing of hard facts, but we do not see it in all its hardness, and if one artist chooses to make it hard, and another soft, can we blame them? We may have greater sympathy with one or the other, but we cannot affirm that one or the other is wholly right or wholly wrong. Thus we realise that, according to our sympathies and powers of observation, we assimilate or appreciate certain qualities and reject or lightly esteem others. You may love A., B., and C. A. and B. and B. and C. are very good friends, but C. hates A., and nothing can make B. and C. think alike about A. Just parallel to this is the education of the artist. Certain values are placed before him for his edification and delight—values above all schools or individuality of like or dislike. But you cannot compel his sympathies, and the better he is, the more pronounced will those sympathies be. The best man to succeed for sheer powers of imitation is the more prosaic, for he accepts things more unquestioningly, and can therefore make a very good copy. The more prosaic man will therefore be likely to make the more careful results, and supply all the hard facts of a thing—in a very hard way. All fine drawing should be stimulating and encouraging, and, however fine it be, the artist should never admit that any of the masterpieces of the world are fine enough to rule him out of existence. There must always be a personal note in one's work which will count for something if we give it a chance. This, of course, applies equally to architectural design. All architects do not get the strongest expression of the same qualities of design in any style. You may get most breadth and repose out of Gothic, and you may lose a good deal of it in Classic. The place which the art of drawing should occupy in an architect's life cannot be located. It should be in the field of his endeavour everywhere and always. He should draw whilst he thinks, and think whilst he draws. He should draw with spirit and pleasure, and never think that slovenly drawing will produce anything but slovenly architecture. Not a line more of drawing than is absolutely essential should appear on a detail or a working plan, but up to that limit the utmost patience and accuracy which is possible should be bestowed. In any form of pictorial representation of architecture it must never be forgotten that dignity can only be obtained by reticence and precision. A fine outline view often has more dignity and impressiveness than one elaborately shaded or coloured. Sparkle and texture, accidental lights and shades, momentary or undue emphasis of particular parts—these are things which do not as a rule help to realise the truth about new buildings, but proper emphasis of the salient forms and details and general tone effects are of chief moment. In justice to the poor client the architect will, of course, show as far as possible in his drawing how he has cut up the whole building into bits, by here a bit of brick, there

of rough-cast, and there of black and white, and indicate the mixture of tiles and slates with which he has adorned his roofs. I cannot forbear quoting here the example which two Liverpool architects have given us on this question of illustration. One of the most brilliant coloured drawings which has appeared at the Academy was that of the Liverpool new Cotton Exchange, by Messrs. Matear & Simon. It was charming, and it explained the design; but does anybody pretend that it is actually like the fine building we see completed to-day?

I have been told that a busy architect has no time to draw. This may be true, or it may be not. Some of the very busiest architects of our time find time for it. They like doing their own work, I suppose!

All the talking and writing which aims to elucidate the spirit of true art may be of very little use. But I feel sure that its final value lies in the inspiration and enthusiasm which it may create. Ruskin has said many things with which I believe painters and critics and architects would strongly disagree; he has no doubt said much that is futile and beside the mark. But of the enthusiasm he has created or sustained there can be no doubt. He once told me I should never draw whilst I remained in a place surrounded by the most bestially-degraded forms of human industry. He was wrong, for some of the finest things have been done in such surroundings and some of the worst stuff in the very best environment. The religion that would last long and impel men to their goal through long odds of misery and hardship was fostered on bleak moorlands in England and the dark catacombs of Rome. As the cheeriness of a doctor often does more than his medicine, so the encouragement of a professor may be more, and wiser, than his teaching. May I suggest to you, gentlemen, that, whilst you keep a wary eye on the dogma, you follow the light of an ideal wherever it is uplifted. Whilst one tells you perdition awaits the Gothicist and he delights you by his brilliant rendering of the Renaissance, you may safely cling to your Gothic if you aim for as high a standard in it as the other in his Renaissance. Art is not linked to some style, or place, or man, whilst the beauties of art are available for all.

One needs a broad and sympathetic mind to be a great artist. He who can only read salvation in one style is greatly to be pitied. Even those who cling most closely to tradition are often wise enough to see the light that comes from other ways. It is probably well to start our lives in a groove of some sort and to follow in a school or in a certain style, but whether we develop that particular school, or style, or branch out into other paths, we need to light our way from every source whence inspiration and good counsel can be sought. Are we not constantly wondering over the shortcomings and defects of our greatest men? Does not the pupil often see with a critical vision that is merciless the profound ignorance of his master? Nay; our wretched ignorance and hollowness of profession is even patent to the office boy.

The end and aim of it all is this: You must have that inside you which makes the impulse good, and then tricks and mannerisms, styles and methods, materials and subjects become of secondary value. If your chief thought be of the latter, you may doubt the possession of the former. An impeccably excellent technician, a perfectly even temperament, will never produce anything that lives. Real distinction and beauty of drawing is not to be accomplished by keen insistence on methods; it is derived from the soul that guides the pencil. This is the meaning of our delight if we see the mass of a cathedral rubbed in with a bit of brick-dust by the hand of a master on a waste scrap of paper, or some blotched and hasty drawing of a hand or foot by one of those great artists who know all about it. We see the mind triumphant over matter and feel keenly the force of contrast. Such things compel our attention to the realities of art. A clean line, a smooth finish, of themselves are nothing, and less than nothing.

Consider the many kinds of drawing with which we are more or less delighted from time to time. In one case it is the smart, clean drawing and the decisive touch which gives the charm, whilst in another it is the very roughness and apparent indecision of line which creates a most interesting individuality and character. Phil May gave it us all sharp and crisp and certain. Charles Keene gave us a broken line, a roughness of texture, and a something of uncertainty in the production of the drawing. Both May and Keene were singularly able and far above ordinary measure, whilst both produced fine character studies. For certain similarity of results we admired both, but that which constituted their individuality of technique was very different. Mr. Pettit gave us wonderfully vigorous studies of old architecture which seemed to be executed with a thick quill pen. Fred Deshon delighted us by the tender delicacy of his shades and tones. Samuel Prout outlined his work with a picturesque touch which exercised an infallible charm, whilst I suppose it was impossible to feel any real trust in the accuracy of his drawing. One of the most marvellous exhibitions of delicacy and daintiness of touch was to be found in the pencil studies of Mr. Meade, one of the Rotch travelling students, and it seemed to make the old buildings he drew live again in a new aspect; but how different it was from the decisive and more laborious handling of detail by Norman Shaw in the continental sketches he once published! The delightfully piquant draughtsmanship of Mr. J. Joass in some of his studentship sketches, the keen, incisive, and dainty pencil studies of foliage by Edgar Wood, the luminous water-colour drawings by Ernest George, the vigorous and often brilliant colour studies by E. W. Wimperis, the exquisite refinement of Mr. Reginald Barratt's water-colour drawings of architecture, the nervous pencil outlines by J. B. Fulton, the free, bold, and intensely artistic sketches by Mr. W. Flockhart, the curiously reserved but characteristic drawings by Baillie Scott, the refined and scholarly drawings by R. Weir Schultz, the rococo recklessness of Railton, with his dash and spirit; the fine freedom of large architectural style by Rickards—all these, and many more, are proof enough to those who feel keenly the influence of good drawing, that during the last quarter of a century English-speaking folk have contributed something quite real to the art forces of the world.

We may lag behind the French in grace—I am sure we do—we may lack the profundity of the Germans or the intense life of the American, we may lack the imagination of an Austrian, an Italian, or a Spaniard; we may fall short of the marvellously decorative refinement of the Japanese, but we show in the individuality of our drawings something of it all. We Britishers, with all our lamentable faults of reserve, clumsiness, and narrowness, have something to show that is of the essence of human interest in our drawing, just as we have maintained it for long years in our domestic art. Such drawings as I have referred to above may claim to reflect the form and spirit of fine architectural charm in a way that tends for the refinement and elevation of the art of architecture and that counts for something valuable in the art of drawing besides. If I had been able to place before you an adequate record of all the beautiful drawing which has passed as a pleasant vision through my life I am sure you would not hesitate to agree with me that the art of drawing, as developed in Great Britain, has done something very real in our time for the benefit of the great art of architecture which we design or illustrate.

I may say one concluding word; it is this: Do not mistake my effort in speaking to you to-night. I have ventured to address you as artists, as the producers of the one art of paramount importance in the world, which is building every day we live some lasting memorials of our times and thoughts. The great difficulties in doing that well I claim to realise as well as you, and I do not desire to lure you into any foolish fairyland of pretty or illusive drawing, even were I able. But I do beg of you to be so catholic-minded that art in all its forms will appeal to you with its full value, and to allow, amongst other things, the art of drawing to brighten your path, inspire your designs, and illumine your spirit, when the cold shadows of specifications and bills of quantities have lowered the lamp of art, and your mind is dwelling more on 5 per cent. and social success than on the record you hope to leave behind you of an architect's powers.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

THE NOVEMBER EXAMINATIONS.

The Preliminary.

THE Preliminary Examination, qualifying for registration as *Probationer R.I.B.A.*, was held in London and the provincial centres mentioned below on November 5 and 6. One hundred and eighty-eight candidates were admitted, and claims for exemption from sitting were allowed to the number of fifty-seven. The remaining 131 were examined, with the following results:—

District.	Number Examined.	Passed.	Relegated.
London	62	44	18
Birmingham	7	6	1
Bristol	8	5	3
Cardiff	6	5	1
Leeds	16	9	7
Manchester	20	13	7
Newcastle	12	9	3
	131	91	40

The passed candidates, with those exempted—making a total of 148 altogether—are as follows:—

J. B. Adams, Hanley, Staffs
P. J. Adams, Buckhurst Hill, Essex
H. A. Ashford, Hoddesdon
G. W. Bacon, Croydon
G. F. Barker, Birmingham
A. C. Beesley Sheffield
H. S. Besant, Stamford Hill, N.
F. Blake, Herne Hill, S.E.
C. F. Boniface, Petersfield
F. A. Brewerton, Whalley Range, Manchester
H. Brewis, South Kensington, S.W.
W. Burn, Rangoon, Burma
P. N. Bushill, Birmingham
E. H. Butcher, Stanford-le-Hope, Essex
D. A. Campbell, Liverpool
P. J. Carey, Bromley
W. D'A. Cathcart, London
H. B. Cawthorne, Mexborough
H. S. Chamberlain, Southsea
T. C. Chamberlain, Forest Hill, S.E.
H. F Chandler, Highgate, N.
G. D. Channon, Malton
W. A. Cheers, Twickenham
G. Cheesewright, Rawmarsh Hill, near Rotherham
W. G. L. Cheriton, Streatham, S.W.
S. Clark, Stanwix, Carlisle
W. Clough, jun., Steeton, near Keighley
H. B. Coates, Altofts
W. V. Coates, Grimsby
B. P. Collin, Andover
H. T. Cook, Chingford
A. E. Cornell, Birmingham
M. J. Cox, Godalming
E. Crellin, Ramsey, Isle of Man
H. W. Cruickshank, Aberdeen
J. G. Dalziel, West Hartlepool
O. F. Davidson, Newcastle-on-Tyne
W. F. Davies, Chester
O. R. Davis, Regent's Park, N.W.
P. W. Davis, London
W. W. Diggle, Regent's Park
W. R. Eckersley, Carlisle
A. L. Edwards, Wimbledon, S.W.
R. E. Elloart, London
A. C. Farmer, Prenton, Birkenhead
G. H. Fawcett, Scarborough
J. H. Fletcher, Hyde, Cheshire
H. C. Fowler, Ryde, I.W.
S. C. Garrett, Brighton
J. D. Grant, Inverness
B. Greenall, Openshaw, Manchester
H. Gresswell, Balham, S.W.
C. T. Hall, Roath, Cardiff
R. B. Hall, Batley
J. J. Harries, Swansea
L. Y. Harris, Nottingham
J. A. Howell, Oxford
F. Howorth, St. Anne's-on-Sea
S. G. W. Hunt, Brighton
D. F. Ingleton, Cardiff
G. W. Jack, London
J. H. Jackson, Horsforth, Leeds
E. G. Jenkins, South Tottenham, N.
S. Johnson, King's Heath, Birmingham
W. S. Jones, Streatham Common, S.W.
L. C. B. Joynson, Wednesbury, Staffs
H. Kelly, Carlisle
H. F. King, Hammersmith, W.
B. Knowles, Bootle
I. T. Lawrence, Maes-yrhaul, Trealaw, Rhondda
W. Lawson, Gateshead-upon-Tyne
W. H. Letheren, Fareham
P. H. Lomax, Bolton
F. Lorn, Falkirk, N.B.
E. Loveluck, Bridgend
M. Lyon, Oxton, Birkenhead
A. Lyth, Bursiem
G. G. Macfarlane, Hillhead, Glasgow
R. MacKenzie, Lochlinchart, Ross-shire, N.B.
C. McLachlan, Lewisham, S.E.
N. A. D. Maclean, Gaurock, N.B.
W. W. McNeil, Blackburn
W. A. Malone, Belfast
C. W. Marles, Sketty, R.S.O., Glam.
H. C. Marshall, Sunderland
H. W. Martindale, Bournemouth
L. D. Martyn, Tiverton
S. P. Mather, Mill Hill School
J. R. Maughan, Hexham-on-Tyne
G. M. Mayhew, Hitchin
L. E. Montenius, Putney, S.W.
J. Moodie, Goodmayes, Essex
H. B. T. Morgan, Wimbledon
H. H. Morley, Earlsfield, S.W.
H. F. Mott, Plymouth
H. M. Nash, Farnham
F. B. Nightingale, Wandsworth Common, S.W.
V. O'Dwyer, Leeds
R. Ordish, Derby
P. P. Patey, Hereford
H. R. Peerless, Reigate
P. Pell-Ilderton, Higher Openshaw, Manchester
A. V. Pusill, Deganwy, near Llandudno
H. O. M. Pym, Nottingham
J. Quekett, Rathgar, Dublin
M. Ravenscroft, Oxton, Cheshire
A. H. Rayment, Cricklewood, N.W.
A. Revie, Airdrie, N.B.
W. Rhind, Earlsfield, S.W.
F. A. Richards, B.A. Oxon, London
B. W. Ridley, Nottingham
G. W. Ridley, Nottingham
R. P. Rosling, Bristol
R. T. Russell, London
W. A. Rutter, Roath, Cardiff
H. S. Sawyer, Carlisle
J. Seddon, Thornton Heath
H. P. Shapland, Islington, N.
R. Shears, Westcliff-on-Sea
H. W. Sheffield, Earls Barton

H. J. Shepherd, Darnall, Sheffield
C. T. Sherwin, Stafford
W. J. Smith, Newcastle-upon-Tyne
G. M. Stewart, Glasgow
J. T. Stone, Streatham, S.W.
A. D. Stuart, East Finchley, N.
J. Sutcliffe, St. Anne's-on-the-Sea
E. Swann-Watts, St. Anne's-on-the-Sea
W. E. Sykes, Cottingham
F. Tapping, Aylesbury
H. A. Thomerson, Clapton, N.E.
L. Tigar, Southampton
T. E. Turner, Solihull
M. T. Violet, Stafford
F. H. Waldron, Enfield, N.
R. L. Wall, Upper Tooting
A. G. Waller, London
T. W. Waller, Edgbaston
H. A. Welch, Regent's Park, N.W.
E. G. Wildin, Stoke-on-Trent
E. W. Willcox, Montpelier, Bristol
E. Williams, Bon-y-maen, near Swansea
S. Williams, Upper Clapton, N.E.
W. E. Willis, Bristol
J. Wilson, London
D. C. Winter, Westcliff-on-Sea
A. Wintle, Twickenham, S.W.
T. Wrigley, St. Anne's-on-the-Sea.

Intermediate.

The Intermediate Examination, qualifying for registration as *Student R.I.B.A.*, was held in London and the undermentioned provincial centres on November 5, 6, 8, and 9. One hundred and forty-four candidates presented themselves and were examined, with the following results :—

District.	Number Examined.	Passed.	Relegated.
London	93	40	53
Bristol	13	8	5
Dublin	2	2	0
Leeds	13	5	8
Manchester	16	7	9
Newcastle	7	3	4
	144	65	79

The sixty-five successful candidates have been registered as *Students R.I.B.A.* Their names, which follow, are given in order of merit, as placed by the Board of Examiners :—

D. W. Ayre, Cork
S. H. H. Ixer, Clapham Common, S.W.
J. L. Denman, Brighton
H. Boddington, jun., Pownall, Wilmslow, Cheshire
E. R. Green, Bloomsbury, W.C.
S. A. Neave, Bloomsbury, W.C.
C. R. Merrison, Stoke Newington, N.
G. E. Hunter, Gosforth
E. W. Wray, Lennox-gardens, S.W.
W. R. Mann, Leicester
D. N. Dyke, London
J. B. Richardson, Shotley Bridge, Co. Durham
A. R. Widdowson, Leicester
H. W. Hallas, Huddersfield
F. L. W. Cloux, Herne Hill, S.E.
F. H. Healey, Heaton Bradford
F. C. Mason, Lee, S.E.
W. H. Louw, Paarl Station, Cape Colony
H. Savage, Camden-road, N.
J. G. Martin, Oldham
J. A. Davidson, Knock, Co. Down
G. B. Selleck, Plymouth
O. White, Edgbaston
A. G. Warnham-Tickle, Willesden, N.W.
F. H. Brazier, Addlestone
H. S. Fleming, Erith, Kent
A. W. Fulton, Liverpool
W. T. Higgins, Stony Stratford
F. E. S. Munt, Balham, S.W.
E. J. E. Moore, Newport, Mon.
J. G. Allen, West Hampstead
R. F. Bargman, Strand, W.C.
R. H. P. Bevis, Lambeth, S.W.
A. H. Boss, Victoria Park, N.E.
H. H. Christie, Anfield, Liverpool
F. W. Commin, Exeter
H. Edmonds, Wolverley, near Kidderminster
W. Goodchild, Ipswich
C. F. Gurney, Headingley
E. H. Hawkins, London
N. Heppenstall, Milnsbridge
G. Hollins, jun., Newcastle, Staffs
R. J. Hughes, Tonypandy, Glamorganshire
C. M. Jones, Swindon
H. P. Kohler, Strand, W.C.
G. E. G. Leith, London
C. J. Mole, Plymouth
D. H. Morgan, Aberdare, Glam.
A. S. Padfield, Cardiff
H. W. Parnacott, Penge, S.E.
T. L. Pearce, London
A. J. Perren, Dulwich, S.E.
N. A. Rew, Great Berkhamsted
A. K. Robertson, Edinburgh
B. Robson, Scarborough
D. G. J. Saw, London
E. D. Sherlock, Fallowfield, Manchester
L. A. D. Shiner, Grays, Essex
R. G. P. Smith, Reading
E. A. Taylor, Chelsea, S.W.
A. Walmsley, Haslingden
J. L. Warry, Ilford
H. West, Chiswick, W.
J. E. Whitehead, Sheffield
J. H. Wyeth, Epsom.

Exemptions from the Intermediate Examination.

In accordance with the new regulations, the following probationers have been exempted by the Council from sitting for the Intermediate Examination, and have been admitted as *Students R.I.B.A.*:—

L. K. Adams, B.A., Birkdale, Lancs.
H. Benton-Benjamin, London
B. H. Collcutt, Willesden, N.W.
B. M. Goodwin, Croydon
H. B. T. Morgan, London
H. H. Scott-Willey, Somersfield, Reigate
F. Thorp, B.A., Southport
A. Welford, Cricklewood, N.W.

The Final Examination.

The Final and Special Examination was held in London from November 15 to 23, with an interval of one day between the written and oral examination. Of the ninety candidates examined, fifty passed, and forty were relegated in various subjects. The following are the names of the fifty passed candidates, the † prefixed to a name signifying that the candidate entered for the Special Examination designed for architects in practice and chief assistants exempted by the Council from the Preliminary and Intermediate Examinations and from submitting testimonies of study :—

A. J. T. Abel, Tooting, S.W.
† W. T. Armstrong, Lancaster
T. S. Attlee, Putney, S.W.
G. S. H. Bradford, London
E. B. Crossley, Sherwood, Nottingham
T. L. Dale, Bedford Park, W.
H. A. Dalrymple, Grays
N. J. Dawson, Chelmsford
† A. C. Denny, Dumbarton
C. M. Drewitt, Southport
P. M. Fraser, London
J. T. Halliday, Southport
J. H. Hargreaves, Manchester
D. P. Hayworth, London
J. R. Hobson, Clevedon, New Eltham
W. A. Hodges, London
J. N. Horsfield, jun., Westminster, S.W.
C. E. Howitt, Sherwood Rise
S. Jaques, Forest Gate
N. Jones, Southport
P. H. Keys, Uxbridge
H. Langman, Southport
L. A. Loades, Morpeth
R. A. Loveitt, Dartford
C. E. Lovell, Gravesend
W. G. Milburn, Wimbledon
A. S. Millar, London
P. Minor, West Didsbury
† C. L. T. Morgan, London
† A. E. Munby, M.A.Cantab, London
N. T. Myers, Watford
G. Nott, Leicester
C. H. Perkins, Carlisle
A. P. H. Pierce, Hampstead
† J. C. Reid, Glasgow
H. P. Roberts, Horsham
† P. T. Runton, Hull
† W. T. Sadler, Streatham, S.W.
I. T. Sifton, St. John's, S.E.
J. M. Smith, Chelsea, S.W.
D. L. Solomon, B.Sc.London, St. John's Wood, N.W.
A. K. Tasker, North Shields
R. W. Thorp, West Hampstead, N.W.
F. J. Toop, South Lambeth, S.W.
J. I. Tweedie, Kelhead, Annan, N.B.
C. P. Wade, Yoxford
F. Wade, Bradford
S. J. Wearing, Leicester
A. P. Wickenden, Maidstone
W. B. Wyllie, Kennington, S.E.

The following table shows the number of failures in each subject among the forty relegated candidates in the Final Examination :—

I. Design	30
II. Mouldings and Ornaments	24
III. Building Materials	13
IV. Principles of Hygiene	17
V. Specifications	13
VI. Construction, *Foundations, etc.*	15
VII. Construction, *Iron and Steel, etc.*	21

The Ashpitel Prize.

On the recommendation of the Board of Examinations the Council propose to award the Ashpitel Prize to Mr. James Theodore Halliday, of Stockport, "as having most highly distinguished himself" in the current year's examinations.

ST. IVES "ORATORY," CORNWALL.

"A PROJECT is on foot," according to an evening paper, "for the restoration of the ruined monastic oratory on the island at St. Ives, Cornwall."

This simple and brief announcement, which was possibly passed over by many readers of the paper in which it appeared, as it had no "heading," draws our attention to a little known, but interesting structure, but with little history. According to particulars we have been able to gather we find the following for chronicling, while the unrestored building is still with us, but it is very brief :—

"Within the memory of man" (*vide* Lyson's *Magna Brittannia*) "were the remains of a chapel near the Quay. There were chapels also formerly at Brunian and Higher Tregenna, the foundations of which are still visible. In Holinshed's *Chronicle* is mention of a chapel of St. Nicholas. on the very point of a peninsula called Perdinas, which had belonged of late to Lord Brooke, and then to Lord Mountjoy. This chapel, of which there are still some remains, is mentioned in the *Liber Regis*. It must have been appurtenant to the Manor of Ludgvan—Lees. . . . . Dr. Borlase says that in June, 1770, a chapel called St. Leonard's, not far south of the pier [was] then turned into a smith's shop. Nevertheless, it might have been that of St. Ante als Ansa prope ripam maris, in which was a guild or fraternity, as appears by the Registers of Exeter See, anno 1495."

From the foregoing it would appear to be the Chapel of St. Nicholas that it is intended to restore, as "there are still some remains," and, owing to the action of the sea and the accumulation of sand and silt, so quaintly referred to in Lyson's, the peninsula has probably by now become an island.

We find no trace, however, of any of the chapels being of a monastic origin or monastic property—unless, indeed, the writer of the note at the head of this article has in mind the "smith's shop," and has confused the guild with a monastery—which is not improbable.

J. A. R.

COPARTNERSHIP HOUSING CONFERENCE.

A LARGELY-ATTENDED Conference, convened by the Copartnership Tenants' Housing Council, was held at the Westminster Palace Hotel on Thursday, December 6. Sir John Bremner, M.P., was in the chair, supported by Sir John Dickson Poynder, M.P., Messrs. Philip Morell, M.P., F. Maddison, M.P., H. Vivian, M.P., Councillor J. Nettlefold (Birmingham), and representatives of various local authorities.

The Chairman said he believed the founders of the Housing Council had hit upon a scheme for the improvement of the housing of the people, which had many merits. First and foremost, it attracted good tenants. He spoke as a man of very considerable experience in this matter, and as a house owner on a very large scale. He became a house owner as a member of a business organisation many years ago, and since then his investments in house property had become very much larger. Therefore it was not without some warrant that he spoke, and not without some authority that he said to them that, given good tenants, houses were an extremely safe investment. Every one of these tenants was to all intents and purposes the owner of the house, and he was irresistibly induced to keep it in good order. When, many years ago, he got married on a modest income he was his own carpenter, cabinet maker, glazier, and whitewasher, and he felt humiliated when he had to call in a plumber, because that was a kind of work he could not do himself. That was the kind of tenant they would get under this copartnership housing scheme.

Sir John Dickson Poynder, M.P., proposed : "That this meeting recognises the merits of the copartnership tenant system of housing, especially in regard to (1) the encouragement of self-help and mutual help in the provision of houses for the working classes; (2) the mobility given to the worker who is thus enabled to own shares instead of a house; (3) the limitation of the return to capital, and the crediting of any surplus as shares to the tenant members; (4) the better planning of areas; (5) the social intercourse and bringing together of various classes of tenants which ensues." He said that in rural districts the wide and ample powers given under the Public Health Act had not been administered in that satisfactory way which should redound to the sanitary condition and comfort of those who had to live in such districts. If it could be shown in future that by neglect or any other cause by those who were now given that vital power Parliament should take upon itself as one of its first duties to pass legislation which would carry out those powers to the satisfaction of those districts. He did not hesitate to say that municipalities could only deal with the problem of housing to a partial degree. For municipalities to attempt to deal with housing in an adequate manner would impose upon those municipalities responsibilities and duties which would become a burden to them to discharge. That was where the copartnership system stepped in. If the municipalities owned the houses, the tenant had no feeling of possession in the house. What was wanted was to get a larger number of the people interested in the possession of land, and this scheme largely solved that problem. It seemed to him that public authorities might greatly help such schemes by buying land cheap and leasing it to housing associations. In districts where land could not be obtained the local authority ought to be able to purchase under compulsory powers, which ought to be made easier, less dilatory, and less expensive.

Mr. H. Vivian, M.P., who seconded, remarked that by laying out large estates in a co-operative way they were able to provide for individual needs and for the community in which the private individual was not able to provide. They were able to lay out the estate as a whole. The usual way of developing estates for building was to crowd as many houses as possible on the land. Their movement was going on in a most satisfactory way. Their Ealing estate was

worth between 50,000*l.* and 60,000*l.*, and on the previous night they passed plans for a further development of the estate by the building of 400 more houses. Then they had their Garden City at Letchworth, Sevenoaks, Bournville, and the estate at Hampstead, where they hoped to erect 700 or 800 houses. A number of other societies—Oldham and Manchester—had been formed, and proposals were made for forming another twenty societies. Then there was a great future for these societies in connexion with small holding villages. In rural housing there would have to be the minimum of expense at every stage and the maximum of land to enable the labourer to add to his low wages.

The resolution was adopted unanimously.

Councillor John Nettlefold, Chairman of the Birmingham Corporation Housing Committee, moved: "That this meeting trusts that the promised Government Housing Bill will make more capital available for lending to these 'societies of public utility' at the lowest market rates, and at the same time will give public authorities greater scope in planning new districts and acquiring land, so that they may co-operate with such societies." He said houses had been built for sale, and not for use. The scheme before them had already succeeded so far as it had gone, and in his opinion it was so inherently sound that it must go far to solve the housing problem. Town planning would do something to restrain land speculation, and so provide cheaper land. By restricting the number of houses put upon an acre the earning power of the acre of land would be reduced, and therefore its value would not rise in the magical way it had been doing round large cities in recent years. He lived in a well-to-do suburb, and the land was not worth more than 500*l.* an acre. Next door to him there was a poor neighbourhood, not near so pleasant a place to live in, and so it was a place where small houses for working men had been built. The houses were put on the land as thick as could be, and the land was now worth 2,000*l.* per acre. That pointed to one way in which town planning would restrict land speculation. Local authorities should have power to purchase land on the outskirts of big cities, and should go sufficiently far out to buy it at about agricultural value. His idea was that they should go to the belt where the land was worth about 200*l.* per acre.

Mr. P. Morell, M.P., said that local authorities had paid 1,000*l.*, 2,000*l.*, and even 3,000*l.* per acre in buying land in suburban districts for the erection of houses. The poor rural authorities were not quite so bold as that, and the result was that in many rural parishes where there was a demand for cottages it was impossible to get houses built because they could not buy land. He strongly supported Mr. Nettlefold's plea for cheaper money. The Public Works Loan Commissioners had power to lend money to societies of this kind at 2¾ per cent., and did so for a short time in 1897. The rates now charged were 3½ per cent. for a twenty years' loan, 3¾ per cent. for thirty years, 4 per cent. for forty years, and 4¼ per cent. for fifty years; and yet the Public Works Loan Commissioners got their money at 2½ per cent., and could well afford to lend it at 2¾ per cent. The difference between 2¾ per cent. and 4¼ per cent. in the case of a house which cost 200*l.* was 1*s.* per week on the rent.

On the proposition of Miss Sybella Gurney, a resolution was passed thanking the Chairman for a generous donation of 500*l.* to the funds of the Council, and expressing the hope that all who are interested in the housing question will assist by subscriptions, or work, or investments of capital.

PROPOSED RECONSTRUCTION OF THE CITY HALL, PERTH.—The Perth Town Council, on the 26th ult., met in committee to select one of the three premium plans for the reconstruction of the City Hall. Dean of Guild Barlas moved that plan No. 2 (Messrs. Meinart & Jarvie) be selected, and this was seconded by Mr. Thomson. Mr. Rollo moved that plan No. 1 (Mr. James Sibbald, Dundee) be adopted, Mr. Calderwood seconding. Discussion followed as to whether the plans if adopted would be taken in their entirety, but ultimately it was understood that the plan adopted would be subject to modification, alteration, or addition, as the Council might think fit. Four members voted for plan No. 1, and ten for plan No. 2, while twelve declined to vote. The matter will, therefore, ultimately rest with the ratepayers.

THE SURVEYORS' INSTITUTION.

AN afternoon meeting of this Institution was held on Monday at No. 12, Great George-street, Westminster, Mr. G. Langridge, President, in the chair, when Mr. Leslie S. Wood read a paper on "The Improvement of our Woodlands." He said that those of them who were looking forward with hope to a time of greater interest in, and better appreciation of, the British woodlands had marked with satisfaction the revival that had taken place within the past few years in public attention to the subject of forestry. The Departmental inquiry of the Government held in 1902, which was a powerful factor in helping forward the movement, was really the outcome of a prior "agitation." Although few in number, those men were bold enough to set an example for a new school of thought, and were so far convinced of the soundness of their arguments that they did not hesitate to condemn much that had always been held as sound doctrine. It was a significant fact that no one had ever seriously attempted to combat the arguments of the modern foresters. It would be saying too much to assert that they had met with no opposition, but their opponents based their objection, not upon the principles, which they admitted, but upon the application of those principles, which, they considered, had a foreign origin, and were not suited to the conditions of our island woodlands. This objection was a great danger, because it contained an element of truth, and gave an opportunity to many to decry any modern effort and to continue in the old ways where ignorance was bliss. It was true that the Continental forester worked amid conditions which gave him every opportunity of reaching a standard of excellence to which we, as a nation, could hardly expect to attain. He was dealing with far larger areas than were customary in Great Britain, and consequently managed them with far greater system and economy. The forests from which he derived his reputation were largely the property of the Government or of municipal bodies, and he was consequently free from individual caprice; he was not hampered by the evil effect of death duties and thoughtless extravagances or sporting enthusiasm. Moreover, the Continental forester was a man of education, especially trained for his work, and had the advantage of records and statistics of the past. He knew that he was working for posterity, and, as his good work would be carried on, it was worthy of his best effort. All these advantages and the consequent result were held up to them to prove the hopelessness of any effort to establish our woodlands upon the same sound footing, and there was always a danger that the rising enthusiasm of a would-be student of the subject would be damped down by the over-confident pessimism of those who knew but little and seek to know but little more. The opponent of the modern school of forestry was essentially narrow in his views. He rejected *in toto* what he denounced as the Continental method, and looked askance at any sylvicultural treatment that was not supported by a considerable precedent. Such an attitude no doubt saved trouble, but we needed a more forward policy than this, if we were to improve our British woodlands. If we allowed that the Continental method was not suitable as a whole, we must not lose sight of the fact that it was not a rigid principle. We were very well able to adopt such details as applied to our own circumstances and omit others that were not suitable. The adoption of the former was by no means restricted by the omission of the latter, nor was the good work of the former minimised by the fact that a part of the complete system was applicable only to large areas, and must therefore be discarded. The active opposition to any modern scheme of improvement was at least satisfactory, in that it showed some interest in the subject and aroused discussion and interchange of opinions. A far more serious obstacle was to be found in the utter apathy of a large proportion of those who were responsible for the woodlands of Great Britain. They wished to be left alone; they had carried on a definite system to the satisfaction of the owner for a long period of years, and, whether it be good or bad, it was, in their opinion, unnecessary to make a change, and possibly inconvenient. They had a silent contempt for anything new, or in any sense scientific, and they judged every man according to his ability in marking and measuring timber. They looked upon these two acquirements as the sum and substance of forestry, which they treated merely as an art, and not a science. We must recognise the essentiality of these two branches of the work, but we must not give them undue importance, simply because they were the part with which we were most familiar, or comprised in knowledge which was acquired by practical usage, rather than by any study of cause and effect. Whatever the practical attainments of the old school of forestry, it would be admitted that for the most part the present condition of our woodlands might be termed chaotic. This condition was not universal, for there were bright exceptions in many parts; but, taking the woodlands as a whole, those who were responsible for their management had not, as a rule, any system of cultivation. We might find methodical cutting of underwood, felling of timber, and also planting. These were an excellent basis for future good management, and were also beneficial to the owner, because they ensured in some measure a regularity of income, but they were not necessarily a progressive policy. We needed to go further in revising our method of culture if we would produce good marketable timber, and so improve our woodlands that they yield a better financial result.

The author then dealt with the question of planting, thinning, financial risk, etc., and with woods that were (1) purely artificial, such as exist in the form of plantations of larch; (2) those that were purely natural, as seen in our beech-woods; and (3) those that were partly natural and partly artificial, such as our coppices with standards.

A vote of thanks having been accorded to the author, it was announced that the next meeting would be held on January 14, when the adjourned discussion will be resumed on Mr. E. H. Blake's paper on "Sanitary Law."

The meeting then terminated.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Alderman Spicer, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Stoke Newington Borough Council 9,500*l.* for street widening and 1,000*l.* for electricity supply.

Closure of Unsuitable Schools.—The Education Committee recommended:—

"That the managers of the undermentioned schools be reminded of the Council's decision of May 30, 1905, and directed to hold a statutory meeting at once; that they be asked whether they intend to carry out the necessary improvements forthwith, and informed that if a definite reply is not received by December 15, 1906, the Council will cease to maintain the schools. . . . Clapham, St. Mary's R.C. (B); Finsbury, C., St. Peter's and St. Paul's R.C.; Hackney, C., St. Joseph's R.C.; Hackney, S., St. Mary of the Immaculate Heart and St. Dominic's R.C. (B); Holborn, Holy Family R.C.; Hoxton, St. Monica's R.C.; Kennington, St. Mary-the-Less N. (C.E.) (G. and L.); Kensington, S., St. George's N. (C.E.); Lambeth, N., Archbishop Sumner's Memorial (St. Phillip's) (C.E.); Lambeth, N., Archbishop Tenison's C.E. (G); Marylebone, W., Emanuel C.E. (B and G); Peckham, Camden N. (C.E.); Rotherhithe, Christ Church N. (C.E.); Strand, St. Edward's R.C. Finsbury, E., St. Mark's N. (C.E.); St. Pancras, W., Holy Trinity N. (C.E.). Greenwich, St. John's C.E. (G and L.; Greenwich, Holy Trinity N. (C.E.); Holborn, Christ Church N. (C.E.); Islington, W., St. James' N. (C.E.); Islington, W., St. Mary Magdalene's N. (C.E.); Marylebone, W., Christ Church N. (C.E.); Paddington, S., St. John's N. (C.E.). Greenwick, St. John's C.E. (B); Hackney, C., St. James' N. (C.E.) (G); Hackney, N., West Hackney N. (C.E.); Kennington, St. Barnabas' N. (C.E.)."

The recommendations were carried after discussion.

Paddington Technical Institute.—The Education Committee recommended, and it was agreed, that the tender of the Electric Construction Company, of Wolverhampton, amounting to 1,990*l.*, for the supply and fixing of electric generating plant at the London County Council Technical Institute be accepted.

District Surveyors' Districts.—The Building Act Committee reported as follows, the recommendations being agreed to:—

"With a view to continuing the work begun by the Council on November 19, 1901, we have had under consideration the question of adjusting the limits of several more District Surveyors' districts in order to make them, so far as may be possible and convenient, coterminous with the boundaries of the electoral areas, constituted under or in pursuance

of the London Government Act, 1899. The present time is particularly favourable for such alterations, as, owing to deaths and resignations, a considerable number of districts are vacant. Sect. 139 (1) of the London Building Act, 1894, provides that the Council may, subject to the payment of compensation to any District Surveyor who is thereby deprived of his office, alter the limits of the district of any District Surveyor or unite any two or more such districts, and place any such altered district under the supervision of any District Surveyor. Broadly speaking the effect of our recommendations, if adopted by the Council, will be the reduction of the three Islington districts to two, viz., Islington (South) and Shoreditch, and Islington (North) and St. Pancras (North); the reduction of the four districts into which the City of London is divided to three, viz., City of London, East, South, and West; the union of the two districts of Fulham, North and South; the division of the existing district of Lewisham into two districts, and the modification in other respects of the boundaries of nine districts. In the event of our recommendations being adopted, we propose to invite applications for the appointments of District Surveyors for the several vacant districts by advertisement, and to submit recommendations with regard thereto as soon as possible. We have negotiated with the District Surveyors concerned, and we recommend :—

(*a*) That the Islington portion of the district known as Clerkenwell and part of Islington be severed from that district, and be added to the adjoining district of Islington (South), Shoreditch, and Norton Folgate.

(*b*) That the portion of the vacant district of Islington (South-West), St. Luke, Old-street, and the Parish of Glasshouse-yard, within the Metropolitan Borough of Islington, southward of the railway through Highbury Station and Maiden-lane Station, be added to the adjoining district of Islington (South), Shoreditch, and Norton Folgate.

(*c*) That Norton Folgate be severed from the district known as Islington (South), Shoreditch, and Norton Folgate, and added to the adjoining district of Whitechapel, Spitalfields, Mile End New Town, and Tower Liberty.

(*d*) That the district of Islington (South), Shoreditch, and Norton Folgate, readjusted as outlined in the foregoing resolutions (*a*), (*b*), and (*c*), be designated Islington (South) and Shoreditch.

(*e*) That the portion of the vacant district of Islington (South-West), St. Luke, Old-street, and the Parish of Glasshouse-yard, within the Metropolitan Borough of Islington, northward of the railway, through Highbury Station and Maiden-lane Station, be added to the adjoining district of Islington (North) and St. Pancras (East).

(*f*) That the portion of the district of St. Pancras (West), northward of the railway, through Camden Town Station and Chalk Farm Station, be severed from that district and added to the adjoining district of Islington (North) and St. Pancras (East).

(*g*) That the portion of the district known as Islington (North) and St. Pancras (East), southward of the railway, through Maiden-lane Station and Camden Town Station, be severed from that district and added to the adjoining district of St. Pancras (West).

(*h*) That the district of Islington (North) and St. Pancras (East), readjusted as outlined in the foregoing resolutions, (*e*), (*f*), and (*g*), be designated Islington (North) and St. Pancras (North).

(*i*) That the portion of the district known as Holborn, East Strand, and part of St. Pancras, within the Metropolitan Borough of St. Pancras, be severed from that district and added to the adjoining district of St. Pancras (West).

(*j*) That the district of St. Pancras (West), readjusted as outlined in the foregoing resolutions, (*f*), (*g*), and (*i*), be designated St Pancras (South).

(*k*) That the portion of the district known as Holborn, East Strand, and part of St. Pancras, within the Metropolitan Borough of Finsbury, be severed from that district and added to the adjoining district of Clerkenwell and part of Islington.

(*l*) That the portion of the vacant district known as Islington (South-West), St. Luke, Old-street, and the Parish of Glasshouse-yard, within the Metropolitan Borough of Finsbury, be added to the adjoining district of Clerkenwell and part of Islington.

(*m*) That the district known as Clerkenwell and part of Islington, readjusted as outlined in the foregoing resolutions, (*a*), (*k*), and (*l*), be designated Finsbury.

(*n*) That the portion of the district known as Holborn, East Strand, and part of St. Pancras, within the City of Westminster, be severed from that district and added to the adjoining vacant district of Bloomsbury, St. Martin-in-the-Fields, Soho, and Covent Garden.

(*o*) That the portion of the vacant district known as Bloomsbury, St. Martin-in-the-Fields, Soho, and Covent Garden, within the Metropolitan Borough of Holborn, be severed from that district and added to the adjoining district of Holborn, East Strand, and part of St. Pancras.

(*p*) That the district of Holborn, East Strand, and part of St. Pancras, readjusted as outlined in the foregoing resolutions (*i*), (*k*), and (*o*), be designated Holborn.

(*q*) That the vacant district of Bloomsbury, St. Martin-in-the-Fields, Soho, and Covent Garden, readjusted as outlined in the foregoing resolutions, (*n*) and (*o*), be designated Strand.

(*r*) That the Queen's Park Ward of the Metropolitan Borough of Paddington be added to the district of Paddington, and that the late detached portion of St. George, Hanover-square, on the north side of Bayswater-road, be severed from the district of St. George, Hanover-square (North) and added to the district of Paddington.

(*s*) That the detached portion of the vacant district known as City of London, Western Division (viz., Cheap Ward), be added to the vacant district known as City of London, Eastern Division.

(*t*) That so much of the vacant district known as City of London, Northern Division, as is situate westward of a line running north and south along the centres of Moor-lane, Fore-street, Aldermanbury-postern, Aldermanbury, and Milk-street, be added to the vacant district of City of London, Western Division.

(*u*) That so much of the vacant district known as City of London, Northern Division, as is situate eastward of a line running north and south along the centres of Moor-lane, Fore-street, Aldermanbury-postern, Aldermanbury, and Milk-street, be added to the vacant district of City of London, Eastern Division.

(*v*) That the district known as City of London, Western Division, readjusted as outlined in the foregoing resolutions, (*s*) and (*t*), be designated City of London (West).

(*w*) That the district known as City of London, Eastern Division, readjusted as outlined in the foregoing resolutions, (*s*) and (*u*), be designated City of London (East).

(*x*) That the district of Lewisham be divided by a line along the South-Eastern and Chatham Railway, through Lewisham-road and Catford stations, and that the two districts so constituted, be designated Lewisham, East, and Lewisham, West.

(*y*) That the district of Fulham (South), when vacant, be added to the district of Fulham (North), and that the district so constituted be designated Fulham.

(*z*) That where alterations in the limits of districts are approved by the Council, the solicitor do take such steps as may be necessary to secure the carrying-out of such alterations, which shall be subject to the conditions that any works in progress, and any proceedings in progress relating to any dangerous or neglected structure, or any other building or structure in areas surrendered by a District Surveyor shall, notwithstanding the transference of those areas from his supervision, continue to be supervised by him until the completion of such works and proceedings, and that no District Surveyor shall claim compensation for any diminution of income which may hereafter arise by reason of such adjustments of limits.

(*aa*) That, unless otherwise specified, and subject to the conditions mentioned in the foregoing resolutions, the alterations of district limits do take effect on and after January 1, 1907, and that the solicitor do take such steps as may be necessary with reference thereto."

Surplus Land, Holborn to Strand.—The Improvements Committee recommended, and it was agreed :—

"That, subject to the result of the usual inquiries proving satisfactory, a site at the junction of Kingsway and Sardinia-street, having an area of about 10,500 sq. ft., and shown by a purple colour on the plan, be let, on the Council's usual conditions, to the Kingsway Exchange, Ltd., for ninety-nine years, at a rent of 2,000*l.* a year, with one year's peppercorn, the rent for the succeeding six months being 500*l.*"

Fire Protection in Soho.—Colonel Probyn asked the Chairman of the Fire Brigade Committee if anything had yet been done to afford further fire protection to Soho.—Mr. Lewin Sharp said the valuer was searching for a site on which the Committee could provide an additional fire-station.

Widening of Blackfriars Bridge.—Mr. Gilbert asked the Chairman of the Highways Committee when it was likely that the widening of Blackfriars Bridge would be taken in hand and the circular route of tramways completed.—Captain Hemphill said that he was informed that the City Corporation was taking all possible steps, but he believed that the minimum time before the widening was complete would be three years.

The Council adjourned after taking unopposed business.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE fourth meeting was held, at the invitation of the Junior Institution of Engineers, at Westminster Palace Hotel on Monday, December 3, when a paper was read by Mr. Adam Hunter, Assoc.M.Inst.C.E., on "The Structural Design of Engineering Factories."

Mr. Hunter commenced by drawing a comparison between former methods of heavy brick-built and badly-lighted factories and modern methods, with steel construction, thin brick or reinforced concrete walls, or even corrugated iron to enclose them, the roofs being supported on steel trusses, and having large skylights. He then dealt with materials in detail, steel being the principal one, which he said should be mild, made by the open hearth acid process, and having an ultimate tensile strength of 28 to 32 tons per square inch of section and an elongation of at least 20 per cent. in a length of 8 in. He then spoke of forces due to cranes and the capacity of electric travelling cranes, giving tables of each, after which he went at length into the question of wind pressure. There are no Board of Trade regulations with regard to this, except in the case of loaded railway bridges, and for these a pressure of 56 lb. per square foot is specified. But during the construction of the Forth Bridge careful records of wind pressures were kept, and he gave the following table of these :—

Records of Wind Pressures on Inchgarvie During Violent Gales.

Year.	Date.	Pressure in lbs. per square foot. Revolving gauge 1·5 sq. ft.	Small fixed gauge 1·5 sq. ft.	Large fixed gauge 300 sq. ft.	In centre of large gauge 1·5 sq. ft.	Right hand top of large gauge.	Direction of Wind.
1884	October 27	29	23	18	—	—	S.W.
1884	„ 28	26	29	19	—	—	S.W.
1885	March 20	30	25	17	—	—	W.
1885	December 4	25	27	19	—	—	W.
1886	March 31	26	31	19	28·5	22·0	S.W.
1887	February 4	26	41	15	—	—	S.W.
1888	January 5	37	16	7	—	—	S.E.
1888	November 17	35	41	27	—	—	W.
1889	„ 2	27	34	12	—	—	S.W.
1890	January 19	27	28	16	—	—	S.W.
1890	„ 21	26	38	15	—	—	W.
1890	„ 25	27	24	18	23¼	22	S.W. by W.
	Average	27·6	29·8	16·9	—	—	—

From this he considered that an average steady wind pressure of 30 lb. per square foot would be found sufficient in factory design. For general principles of design he mentioned, amongst other points, that the main columns should always be carried up to the underside of the roof trusses, and the roof girders fixed between the columns, and not on the top of them. Foundations should be deep enough to be beyond the influence of frost or drought. In this country a depth of 3 ft. will be sufficient for soils of a porous nature and about 4 ft. in clayey soils. For the steel construction in the best practice it is considered desirable that flat bars and rods and adjustable members should be avoided. In roofs it is usual for the whole to be of glass and putty glazing may be used, and gives satisfaction, though there are different forms of patent glazings. For side coverings, if corrugated iron is used, the thickness should not be less than No. 18 W.G. where durability is desired. If brick filling is adopted it should not be less than 9 in. and laid in cement mortar. For floors Canadian rock maple is sometimes used. Wood block flooring is common for machine and erecting shops. In smithies' and boiler shops furnace ashes well rolled is the usual floor. Steelwork is painted one coat of red lead before leaving the yard and one coat of oxide paint after it is erected. Mr. Hunter concluded by saying an ordinary factory of, say 1,000 ft. cube could be constructed for 1d. to 1½d. a foot cube, and one 1,000,000 ft. cube for ¾d.

Mr. Lishman (Chairman of Discussion Section) opened the discussion, and, after commenting on the question of foundations, wind pressure, and painting, said, from an architectural point of view, he thought engineering factories should be designed to show their character.

Mr. F. R. Durham (the Chairman) said he believed the present paper gave the first publication of the wind pressures taken at the time of the building of the Forth Bridge. He also noted the expression "legitimate" use of reinforced concrete, and, as Mr. Hunter had not mentioned this for foundations which were below ground, he presumed he would not use reinforced concrete there, to which he would heartily concur. Finally, he thought the architect and engineer should be brought more together, as the engineer is accustomed to handle his materials from a different point of view; he tries to dispose

of his materials in the most economical manner, and if they worked more together he could help the architect in this respect.

Mr. S. Cutler, jun., said he knew of a factory which had stood well with only half-brick panel enclosures.

Mr. Lovegrove said he believed rain would come through if half-brick panels were used, and also thought putty glazing would not last, and if it was used patent glazing would have to be finally substituted for it.

Mr. Waldeam drew comparison between an engineer's factory as described by Mr. Hunter and one like that at Queensferry, illustrated in the *Builder* for December 1 last, and designed by Mr. H. B. Creswell. The Queensferry buildings would cost at least 6d. to 8d. per foot cube, so that the extra cost of architectural stability was a consideration. With regard to regulations, he said the Royal Institute of British Architects in February, 1904, suggested regulations for plain buildings.

Mr. Porter referred to the Admiralty regulations, which gave slating for roofs.

Mr. Bryan said he had seen ferro-concrete works near Paris, where walls 4 in. thick were used, but they were rendered both sides with pure cement.

Messrs. Billing, Bishop, J. H. Pearson, and Eade also spoke, after which Mr. Hunter replied, and the meeting terminated.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

City of London.—A projecting shelter in front of the Blackfriars station of the Metropolitan District Railway, Queen Victoria-street, City (Mr. C. H. King for the Metropolitan District Railway Company).—Consent.

Kensington, South.—The retention of wood and glass screens at the sides of a projecting porch in front of No. 17, Queen's-gate, Kensington (Mr. J. W. Restler).—Consent.

Lewisham.—That the application of Mr. E. C. Christmas for an extension of the period within which the erection of three houses with one-story shops in front, on the site of No. 63, Dartmouth-road, Forest-hill, and the erection of additional stories over the existing shops at Nos. 55 and 55A, Dartmouth-road, were required to be completed, be granted.—Consent.

Marylebone, East.—A porch and two balconies in front of De Walden-court on the northern side of New Cavendish-street, St. Marylebone (Mr. D. Joseph for Mr. F. Britton).—Consent.

Strand.†—An iron and glass addition at the first-floor level in front of the Alhambra Music Hall, Leicester-square (Mr. W. M. Brutton for the Alhambra Company).—Consent.

Westminster.—Retention of a projecting sign in front of No. 121, Victoria-street, Westminster (Messrs. F. Hazell & Co.).—Consent.

Wandsworth.—Porches in front of nine houses on the southern side of Putney Heath-lane, Wandsworth, eastward of Dungarvon cottage (Mr. H. Bignold for Mr. W. Tucker).—Refused.

Width of Way.

Kensington, South.—Buildings at the rear of No. 58A, Earl's-court-road, Kensington, at less than the prescribed distance from the centre of the roadway of Pembroke-mews (Mr. A. E. Parsons for Messrs. A. Roberts & Co., Ltd).—Consent.

Width of Way and Projections.

Hampstead.—An iron and glass veranda in front of a motor garage at "The Logs," Well-road, Hampstead (Mr. W. A. Hudson for Mr. F. C. Pusinelli).—Consent.

Walworth.—A forecourt fence in front of No. 144A, Trafalgar-street, Walworth, at less than the prescribed distance from the centre of the roadway of such street, and to the erection of a projecting one-story porch in front of the said building (Mr. R. J. Dickins for the Right Hon. the Lord Llangattock).—Consent.

Width of Way and Construction.

Fulham.—A wood and iron building, of a temporary character, at the side of No. 39, Munster-road, Fulham (Mr. J. Cable for Mr. J. H. Neave).—Consent.

Lines of Frontage and Construction.

Newington, West.—The retention of a photographic showcase in front of No. 194, New Kent-road, Newington (Mr. M. B. Olley).—Consent.

Space at Rear.

St. Pancras, West.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of buildings on the northern side of Longford-street (Mr. P. B. Tubbs for Mr. H. B. James).—Consent.

Space at Rear and Construction.

Kennington.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of No. 152, Lower Kennington-lane, Kennington, and do also approve the erection of external iron staircases and balconies on the open space at the rear of Nos. 142 to 152 (even numbers only) inclusive, Lower Kennington-lane (Mr. C. Barker for the Duchy of Cornwall).—Consent.

Dwelling-houses on Low-Lying Land.

Bermondsey.—That a licence be granted to Mr. G. Brenner for the erection of a building on low-lying land situated at Baffin's-place, Bermondsey.—Consent.

Rotherhithe.—That a licence be granted to Mrs. Portlock for the erection of six cottages on low-lying land situated at Nos. 74 to 79, George-row, Bermondsey.—Consent.

The recommendation marked † is contrary to the views of the local authorities.

Architectural Societies.

MANCHESTER SOCIETY OF ARCHITECTS.—At a students' meeting held on Tuesday, the 4th inst., at the rooms of the Society, Mr. Basil Pendleton read a paper entitled "Stories of Our English Homes." The lecturer gave a short description of some of our early castles, a view of Conisborough Castle being shown as an example, after which he proceeded to the monasteries and abbeys, and showed how the mode of living caused the development of the different rooms, the Abbeys of Fountains and Kirkstall being very fully illustrated to show the various points. One of the earliest examples of a house shown was the Jews' House at Lincoln. The lecturer then dealt with private manor-houses which were fortified by Royal licence. Among the examples shown on the screen were Stokesay Castle, Aydon Castle, and Little Wenham Castle. The next period took them to a time when it was no longer necessary to make a home which would stand a siege, but one which must be capable of withstanding any marauding expedition. The hall had now become one of the principal features of the plan, and had a raised dais at one end and at the other a screen which shut off the entrance and offices. Numerous slides were shown of Haddon Hall, it being considered one of the best examples of mediæval house. Slides of Hardwick Hall were also shown, and the finely-proportioned windows noted. Among other examples were Hampton Court, Blenheim Palace, and Chatsworth. Mr. Paul Ogden occupied the chair, and, in referring to the finely-proportioned windows of Hardwick Hall, explained the different rules for proportioning the widths and heights of windows.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the rooms of this Society on Thursday, the 6th inst., Mr. C. B. Howdill read a paper on "Stained-glass." The President, Mr. H. S. Chorley, occupied the chair. The lecturer first dealt with the discovery and early history of glass, and afterwards described in detail the method of making glass, both stained and enamelled. He also explained the process of making ecclesiastical figure windows from the first cartoon and cutting of the glass onwards through the painting to the leading and fixing. The different periods of mediæval glass were explained, and illustrated in unique manner by many fine natural colour slides of famous historic windows at York, Ripon, and Oxford, the slides having been made by the lecturer himself. It was John Thornton, of Coventry, the glass painter of the XVth century, who glazed the great east window of York Minster, and was paid about 900*l.* of our money for a window which according to modern values would cost about 2,000*l.* The old craftsmen of the XIVth century, however, drove a harder bargain and secured better pay for their work. In the XIVth century the rate of pay was 9s. (modern money) per foot for plain glass and 18s. per foot for coloured glass. That this was exceedingly good pay is shown by the fact that the cost of such work to-day would be roughly estimated at from 25s. to 30s. per foot. Some examples of the famous Fairford windows were also exhibited, and some of the windows were shown in detail and their meaning elucidated. Various phases of modern glass were illustrated, including some of the earlier and also late work of Burne Jones at Christ Church, Oxford. The influence of Botticelli on glass painting was pointed out.

Archæological Societies.

ST. PAUL'S ECCLESIOLOGICAL SOCIETY.—"Wells Cathedral: an Idyllic Minster of the West Country" was the subject of a lecture delivered before the St. Paul's Ecclesiological Society at the Chapter House, St. Paul's, on Wednesday, December 12, by Mr. E. W. Harvey Piper, the Rev. Lewis Gilbertson, F.S.A., in the chair. A young photographer and student, the lecturer suggested, consulted an older friend, asking where he could find a typical English minster, charming in grouping, harmonious in proportions, and enriched by quaint carving within and without; it should be complete in all its adjuncts of chapter-house and cloister, and enshrined in a setting of ancient buildings, gates, and towers, with hill-sides, abundant trees, and verdant meadows for an outer framework. Such an ideal, idyllic minster, feminine rather than masculine in its characteristics, was to be found at Wells. To the objection that its story was hackneyed the reply was made that only within the last twenty years, thanks to the investigations of Canon Church and the late Rev. J. A. Bennett, had the chronology and evolution of the cathedral been determined and the building of the central mass been correctly assigned to the days of Bishop Reginald de Bohun (1174-1191). The friends agreed to visit Wells together, and the result of their inspection was thrown on the screen in the form of over 100 lantern slides. The exhibition of a number of exterior views from various standpoints was followed by an analysis of the distinctive features of the ground plan, the development of the existing building being treated in detail. The west front, the widest cathedral façade in England, was eulogised and criticised. It was shown that the feature of the extension of the western towers beyond the outer walls of the north and south nave aisles gave to it its unique breadth, and the front, as a framework for statuary, was compared with Salisbury and contrasted with those of Lincoln and Peterborough. The forms of saints and kings standing above the cathedral porch were dealt with in detail, attention being called to the grace, self-restraint, and simplicity of treatment which distinguish these, the finest works of English sculptors of the XIIIth century. The carving was contrasted with the figure-work of Northern France and that of Winchester, Gloucester, and Westminster. Typical kings, queens, statesmen, bishops, priests, deacons, and knights in chain armour were shown on the screen, and the lecturer suggested the value of those matchless sculptures—fair, untouched blossoms still on the branches for which they were conceived—to the student of regal and ecclesiastical costume. A quatrefoil group, introduced as a family portrait graven in stone, of an undoubted ancestor of every member of the audience, carved six and a half centuries since, proved to be Noah labouring as a shipwright. The solemnity and dignity of the nude figures in the Resurrection groups were dilated upon, and the high technique of the anatomy and drapery of the whole series was emphasised. In a rapid survey the lecturer passed round the exterior of the cathedral, visiting the vicar's close, the chapter-house and its undercroft, the cloisters and library, finally the palace, and, following views of the quadrangle and ruined hall, a portrait of Thomas Ken was projected on the screen as a reminder of the five years' bishopric of that sturdy non-juror and saintly hymn-writer. In summarising the external treatment, Mr. Harvey Piper contended that nowhere was the ornament overdone; nothing at Wells was too rich or florid, but everything harmonised in a beauty that never became ostentatious or gaudy. Entering the nave the peculiarities of its construction were referred to. The huge relieving arches at the east end and across the transepts were designed as a structural work of reinforcement, carried out with the consummate skill of a great engineer and the precision of fit of a dentist's set of teeth.

The stopping of the vaulting shafts at the string-course over the continuous triforium was shown to contribute greatly to the horizontality of effect, whereby the low pitch of the vault was more than compensated for. The chantries, the XIth century font, Peter Lightfoot's clock, and the transepts, their chapels and monuments, were described in turn, and a series of illustrations of the quaint and often humorous carvings of the pier capitals was shown on the screen, including the martyrs to the toothache, the old woman removing a thorn from her foot, the pedlar and his pack, the farmer chasing the fox, the cobler and the fate of the fruit stealers told in four acts. A visit to the Lady chapel, choir, and aisles completed the survey, the author concluding with a description of the desecration of the choir and the defence of the altar by Lord Grey of Wark and Sir Gervase Jerome during the Monmouth rising of July, 1685.

Engineering Societies.

THE JUNIOR INSTITUTION OF ENGINEERS.—On Saturday, the 8th inst., on the invitation of the President, Mr. W. B. Bryan, Chief Engineer to the Metropolitan Water Board, a large number of members of this Institution paid a visit to the Honor Oak reservoirs, which are in course of construction for the Board under the direction and supervision of Mr. J. W. Restler, by whom they were designed. Mr. Bryan, assisted by Mr. F. Melhuish and other members of the staff, conducted the party over the extensive works, pointing out the features of special interest. The reservoir will contain nearly sixty million gallons of water, and will probably be the largest covered reservoir in the world. The construction generally is of brickwork and concrete, with walls separating the reservoir into four divisions. A middle wall 3 ft. in thickness extends all round the outer walls, and is keyed into the clay. At the centre of the four reservoirs will be the central well, from which the charging and emptying will be directed. The bricks used have all been made from the excavated clay on the site, sixteen million bricks so far having been produced. The existing engine-house and well-pumps were also seen.

SOCIETY OF ENGINEERS.—The fifty-second annual general meeting of the Society of Engineers was held on Monday, the 10th inst., at 17, Victoria-street, Westminster. The chair was occupied by Mr. Maurice Wilson, President. The following gentlemen were duly elected by ballot, as the Council and officers for 1907, viz.:—As President—Mr. Richard St. George Moore; as Vice-Presidents—Messrs. Joseph William Wilson, William Henry Holttum, and George Abraham Goodwin; as ordinary members of Council—Messrs. John Aird, Joseph Bernays, Francis George Bloyd, Alexander Graham Drury, George Green, John Kennedy, Edward John Silcock, and Diogo Andrew Symons; as Honorary Secretary and Treasurer—Mr. David Butler Butler; as Honorary Auditor—Mr. Samuel Wood, F.C.A. The President announced the death, on November 30, of Sir Edward James Reed, K.C.B., who was elected an honorary member of the Society in 1877. The President announced that the following premiums had been awarded by the Council for papers read during the past session, viz.:—The President's gold medal to Mr. Frank Latham for his paper on "Harbour Exigency Works"; the Bessemer premium of books to Messrs. W. Pollard Digby and Henry C. H. Shenton for their joint paper on "The Prevention of the Bacterial Contamination of Streams and Oyster-beds"; a Society's premium of books to Dr. David Sommerville for his paper on "The Chemistry and Bacteriology of Potable Waters"; and a Society's premium of books to Mr. Gerald O. Case for his paper on "Submarine Groyning."

PUBLIC LIBRARY, BURNTISLAND.—The erection of the new free library in the High-street is now nearing completion. Mr. Williamson, architect, of Kirkcaldy, prepared the designs.

House, Kensington Palace Gardens. Plan.

Fifty Years Ago.

FROM THE *Builder* OF DECEMBER 13, 1856.

THAMES BRIDGES.

WE wished to urge that not one or two bridges, but three, are required for carriage traffic between Waterloo and Vauxhall. It is a false system, and one that is injurious to London in many ways which may appear to have no immediate connexion with the subject, to stint the means of communication between different parts of a metropolis, as in London would seem to have been done. Looking to mere area, the very heart of London is that portion of the plan which is cut off by the curve of the river between the Blackfriars-road and Westminster Bridge-road. Yet sites for dwellings for the poor are wanted; and some public buildings, notwithstanding the low level, might be advantageously placed in the locality, were the freedom of access perfect, and divested of a tax. The question of provision of dwellings is one with which London has dallied much too long: some energetic meeting of the evil is required; and, as a large number of the poorer inhabitants of the neighbourhood of Parliament-street may suffer grievously by the proposed improvements there, Government may fairly be asked to promote the erection of dwellings of a different class to those which now exist on the Lambeth side—such as combine a more economic use of the ground with better distribution of plan—and to provide the requisite direct communication to them. Indeed, so strongly does this argument of the utilisation of the Lambeth district prevail with the writer of the article in the "Companion to the Almanack" which we lately referred to, that he seems to rely upon it as his main argument for increase in the number of Thames bridges.

Illustrations.

DESIGN FOR A THEATRE CEILING.

THIS design, by Mr. A. C. Conrade, was intended as an essay in what might be termed symmetrical figure-work, the design consisting of pyramidal groups, with the apexes converging towards the centre.

It would be suitable for a theatre in the Renaissance style, with perhaps a leaning towards the Adam treatment.

This particular design has not been as yet carried out. Mr. Conrade has, however, already painted ceilings in several theatres in England, the Theatre Royal at Brighton among others, with a design illustrating Spring, Summer, and Autumn.

HOUSE, KENSINGTON PALACE GARDENS.

THE materials externally are red brick and Portland stone and Westmorland green slates. Internally the hall and corridor and main stairs and billiard-room are panelled in oak.

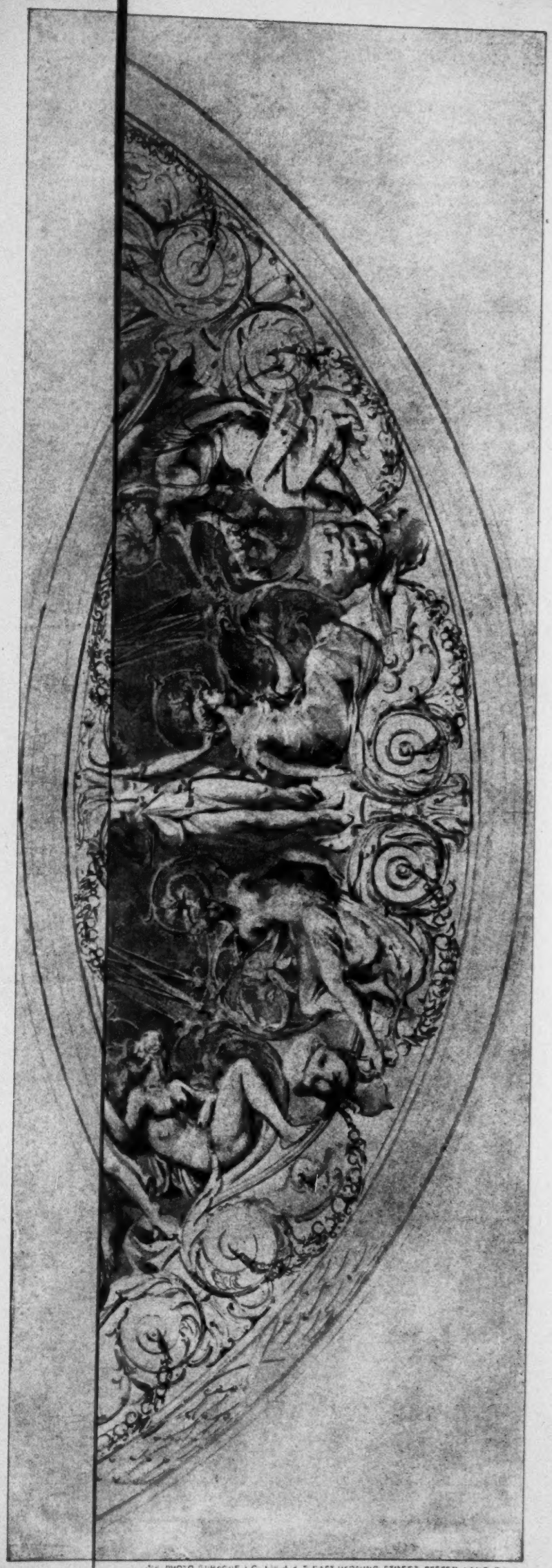
Mr. E. J. May is the architect. The drawing was exhibited at the last Royal Academy exhibition.

VILLAGE HALL AND READING-ROOM, SHORNE.

THIS hall has recently been built by the Shorne Parish Council with funds which came to them as compensation for the closing of a public footpath by the British Uralite Company, whose works are in this parish.

The actual cost of the building was 495*l*. Drains and water supply insisted on by the Strood District Council, including a stretch of drain down to the public road, cost 28*l*. extra; gates and fencing cost 11*l*., and about 50*l*. was spent in furniture, such as tables, chairs, benches, platform steps, curtains, lamps, copper, etc. The tables were made of such sizes and of sufficient strength that they could be fitted into the end of the hall and form a stage when so required.

The roof construction was worked out so as to be done in the most economical way, and is built up entirely out of 5 by 2 scantlings bolted together. There are no rafters, but 1-in. boarding runs vertically from eaves to ridge, and is fixed to the cross purlins; this boarding forms the ceiling of



JOHN PHOTO SHRAGUE & C° LTD 4 & 5 EASTHARDING STREET FETTER LANE E.C.

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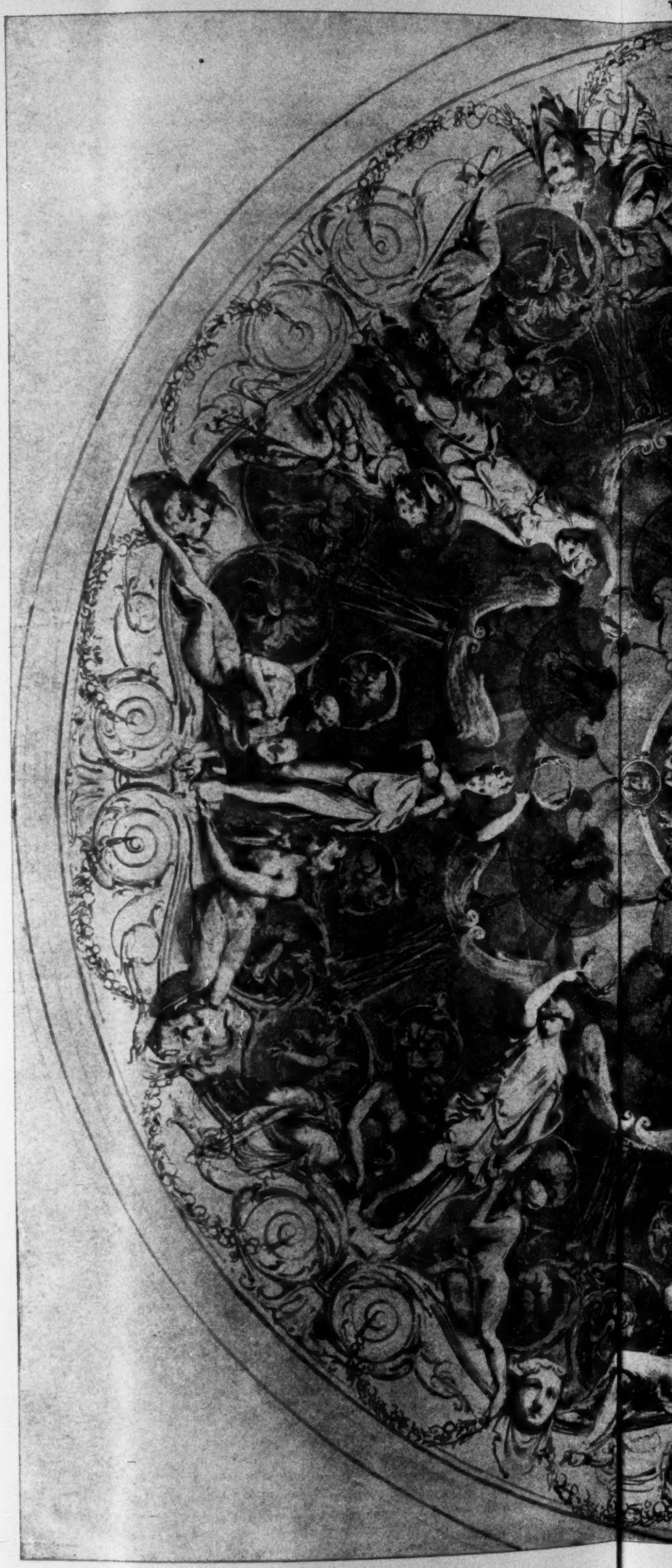

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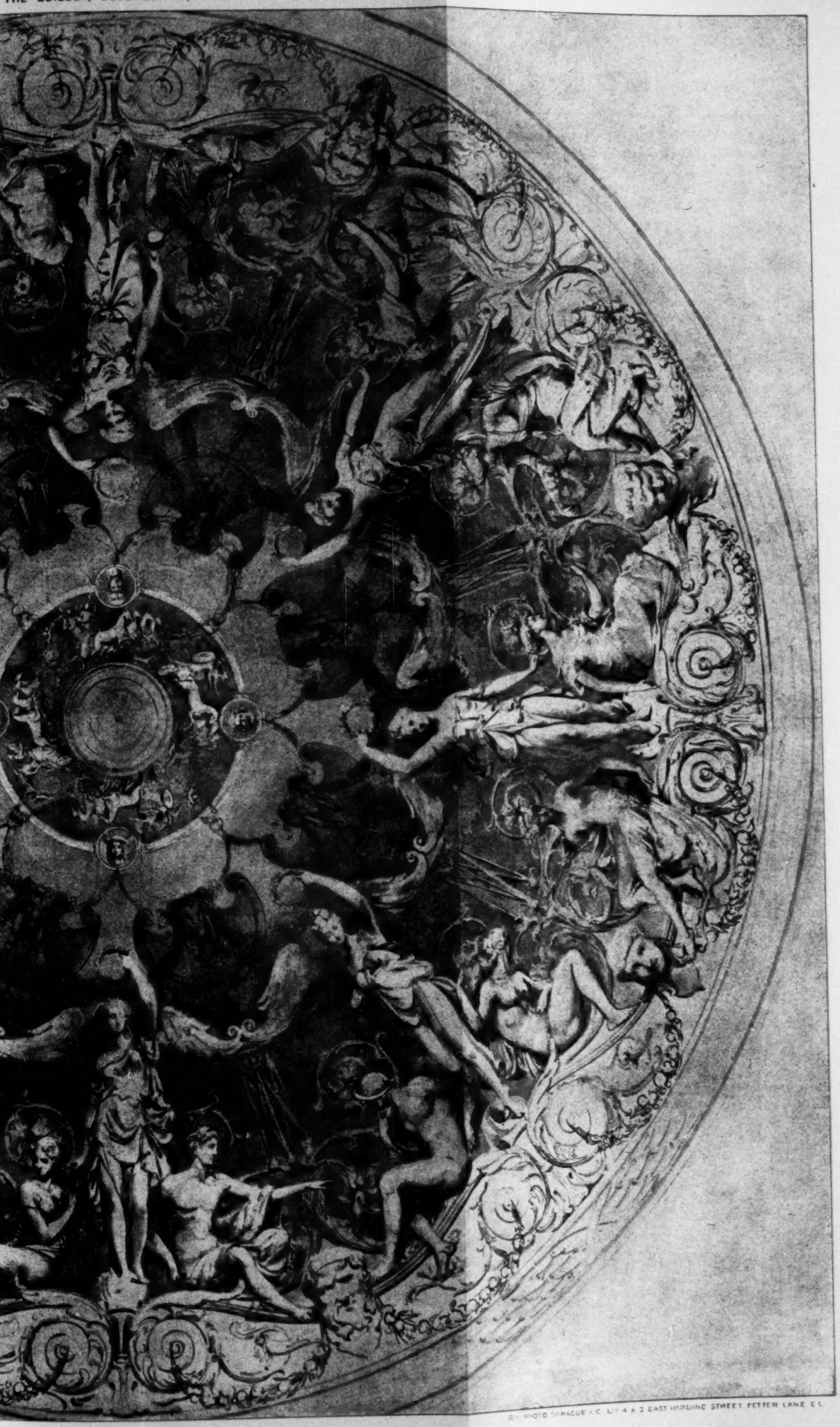

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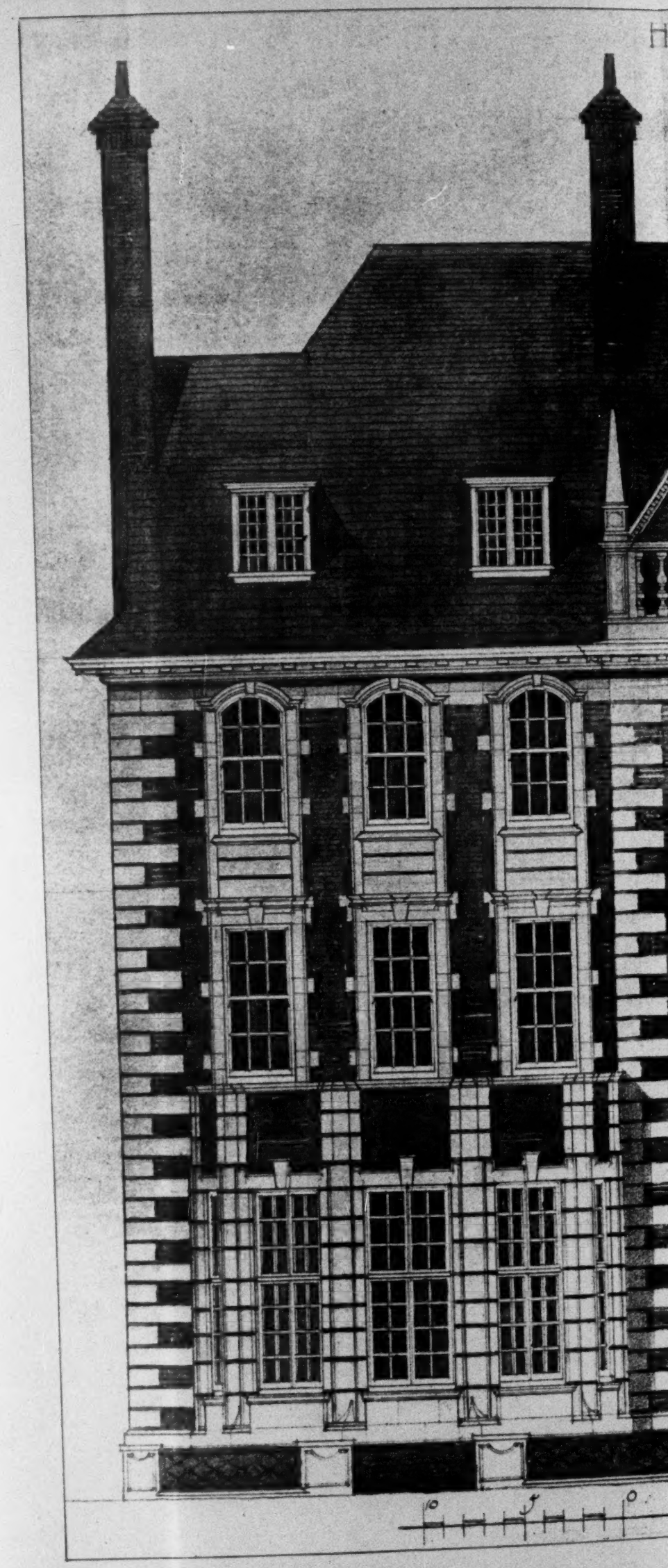
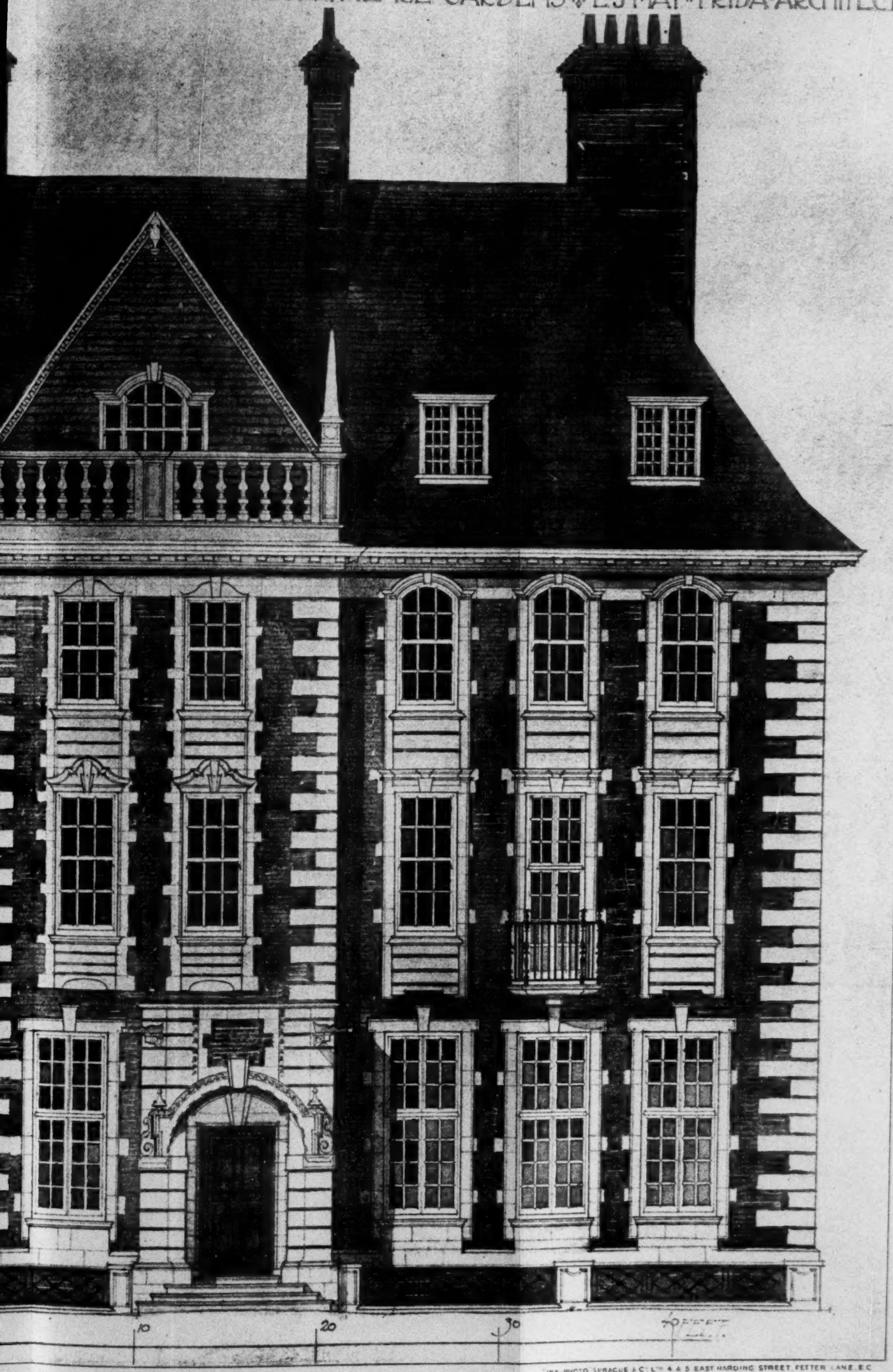
OR A THEATRE CEILING.—By Mr. A. C. Conrade.



HOUSE IN KENSINGTON PALACE GARDENS ❖ E. J. MAY, F.R.I.B.A., ARCHITECT



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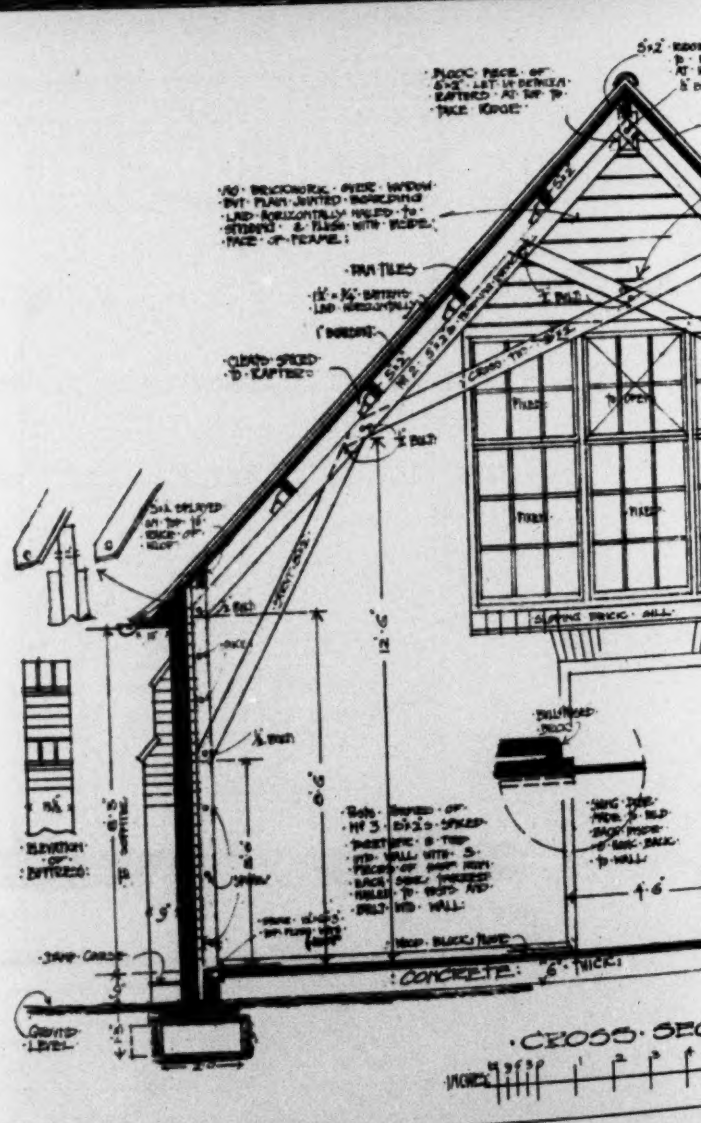
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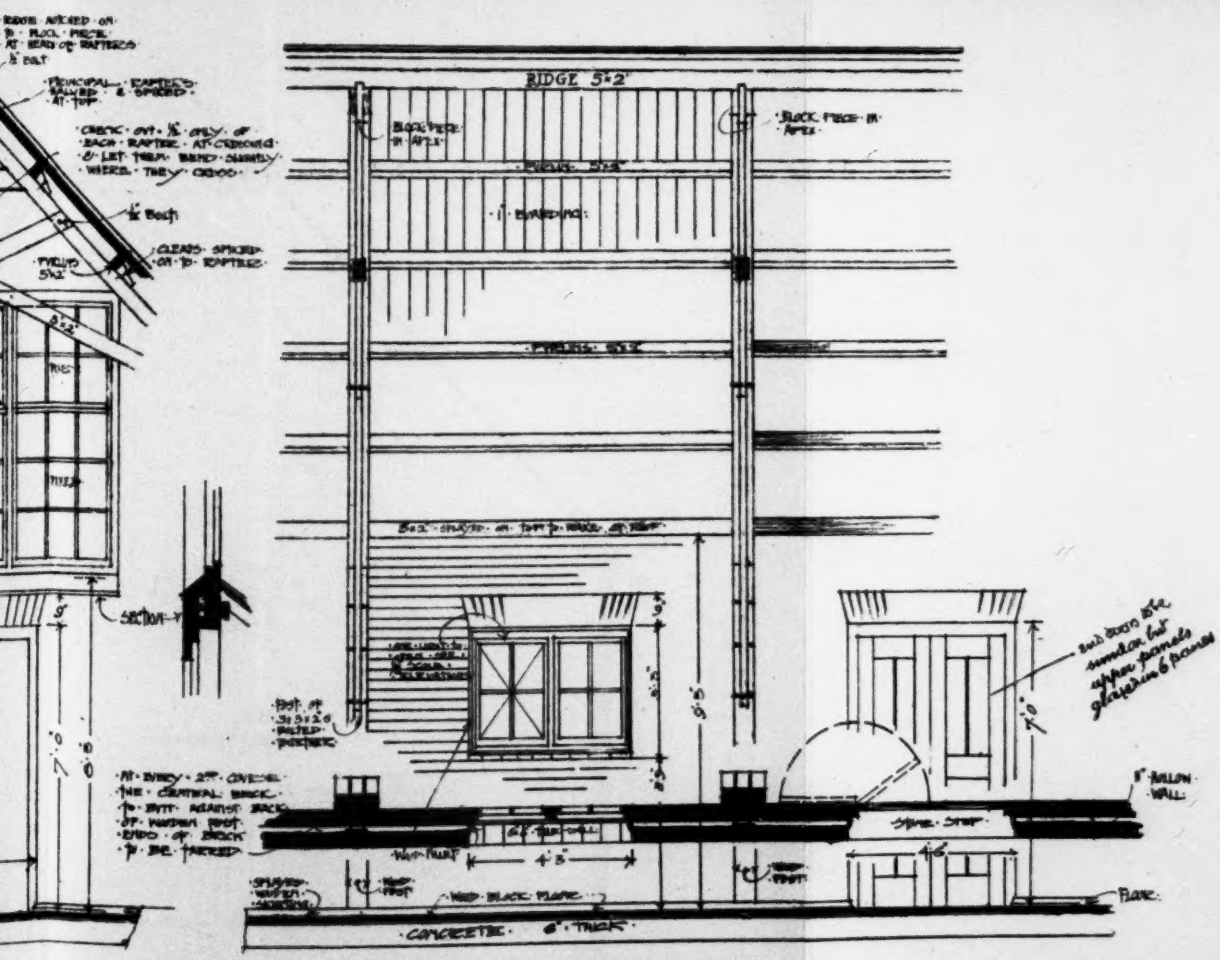

CTION. · LONGITUDINAL SECTION:

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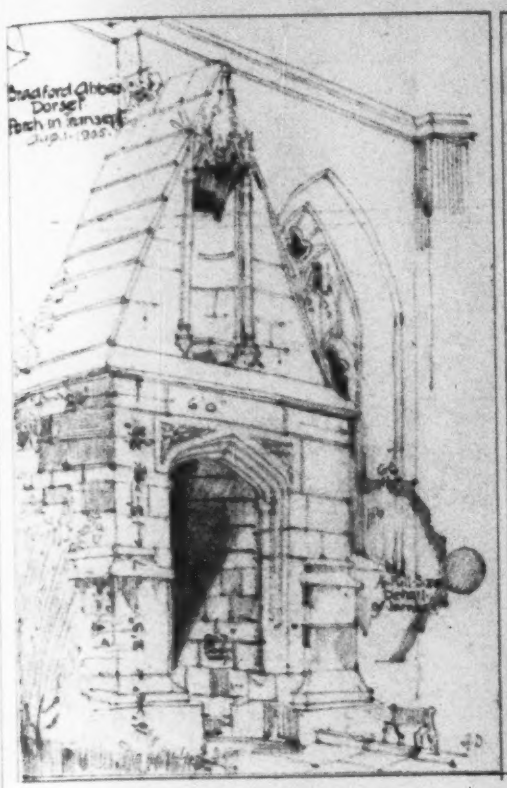
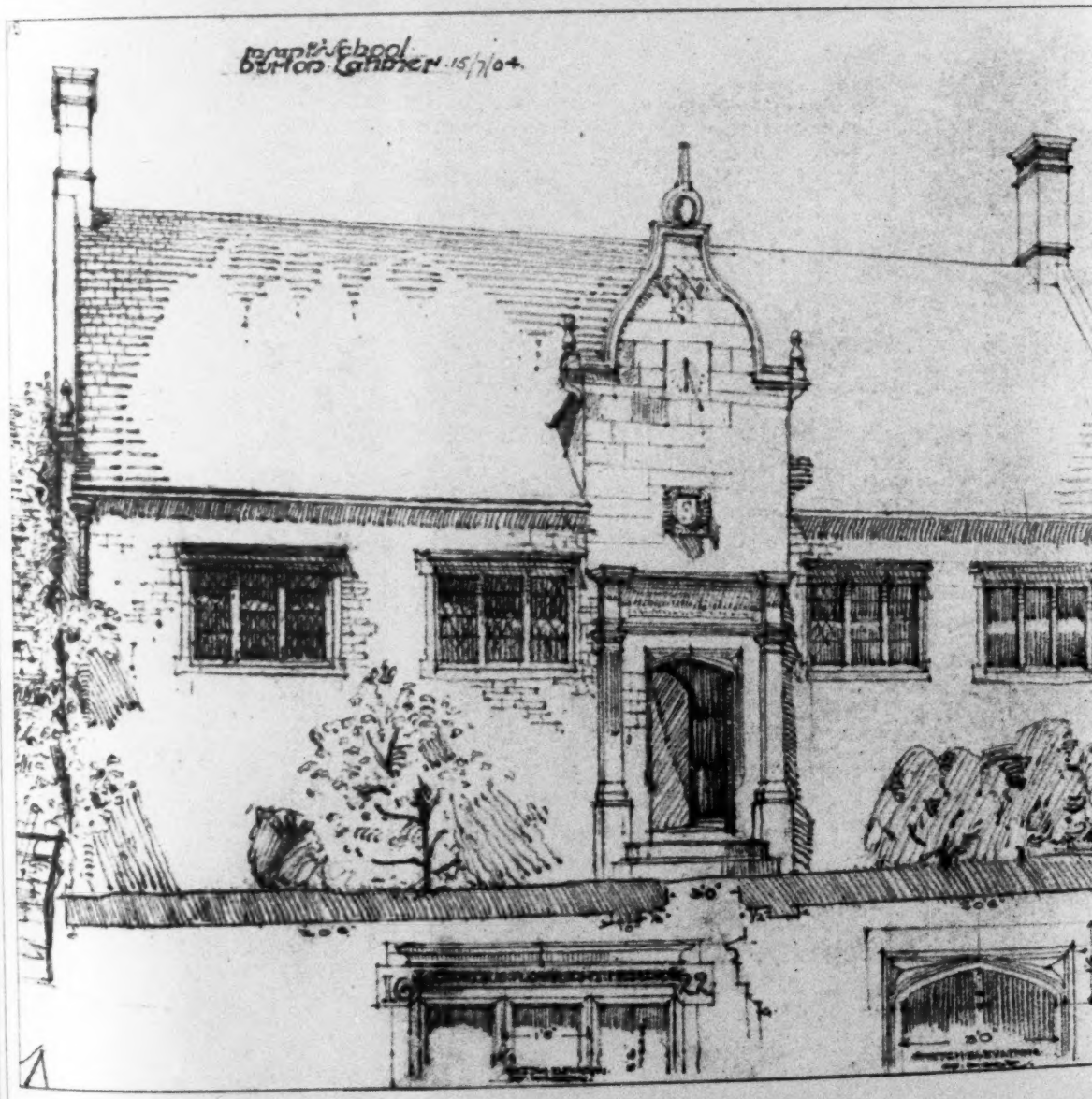
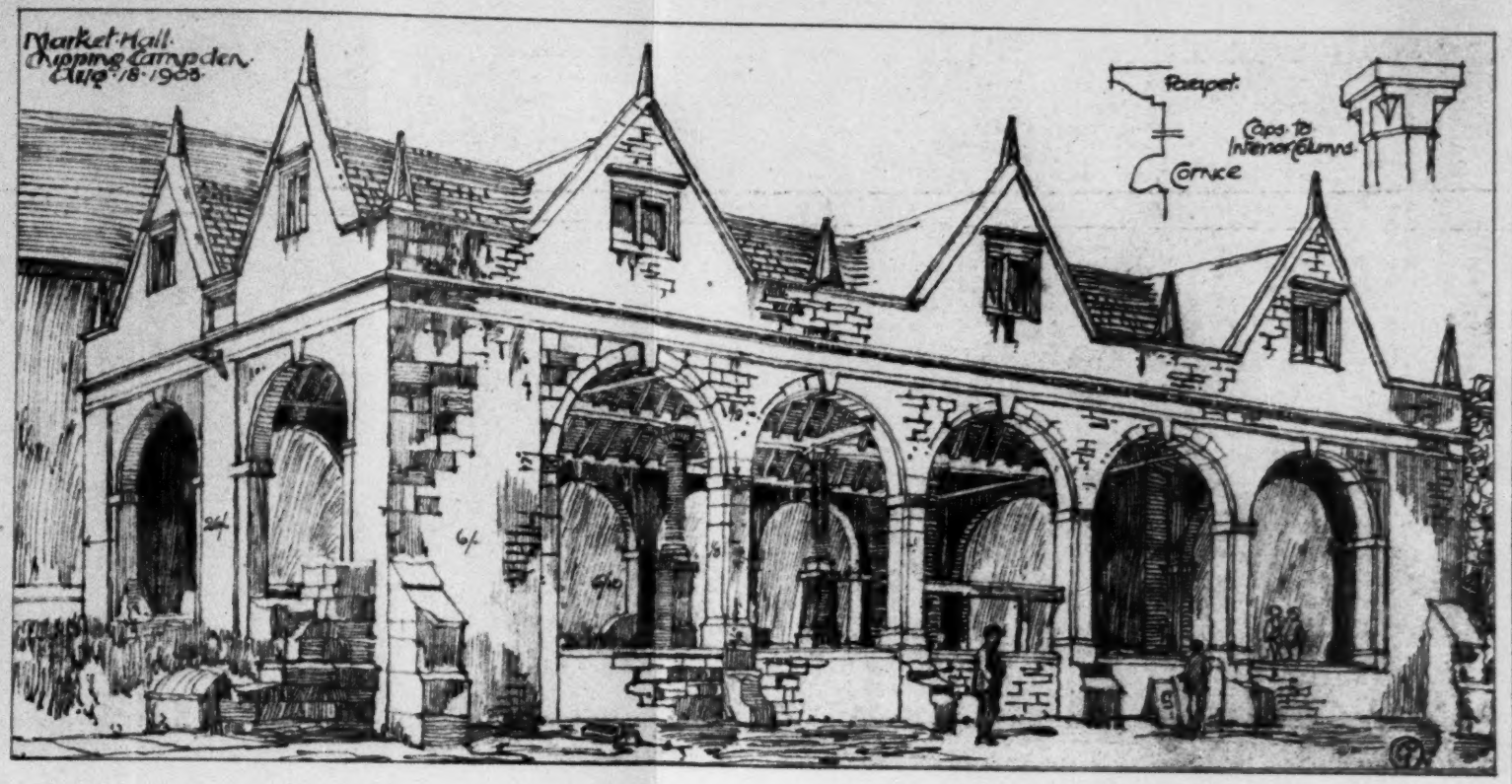
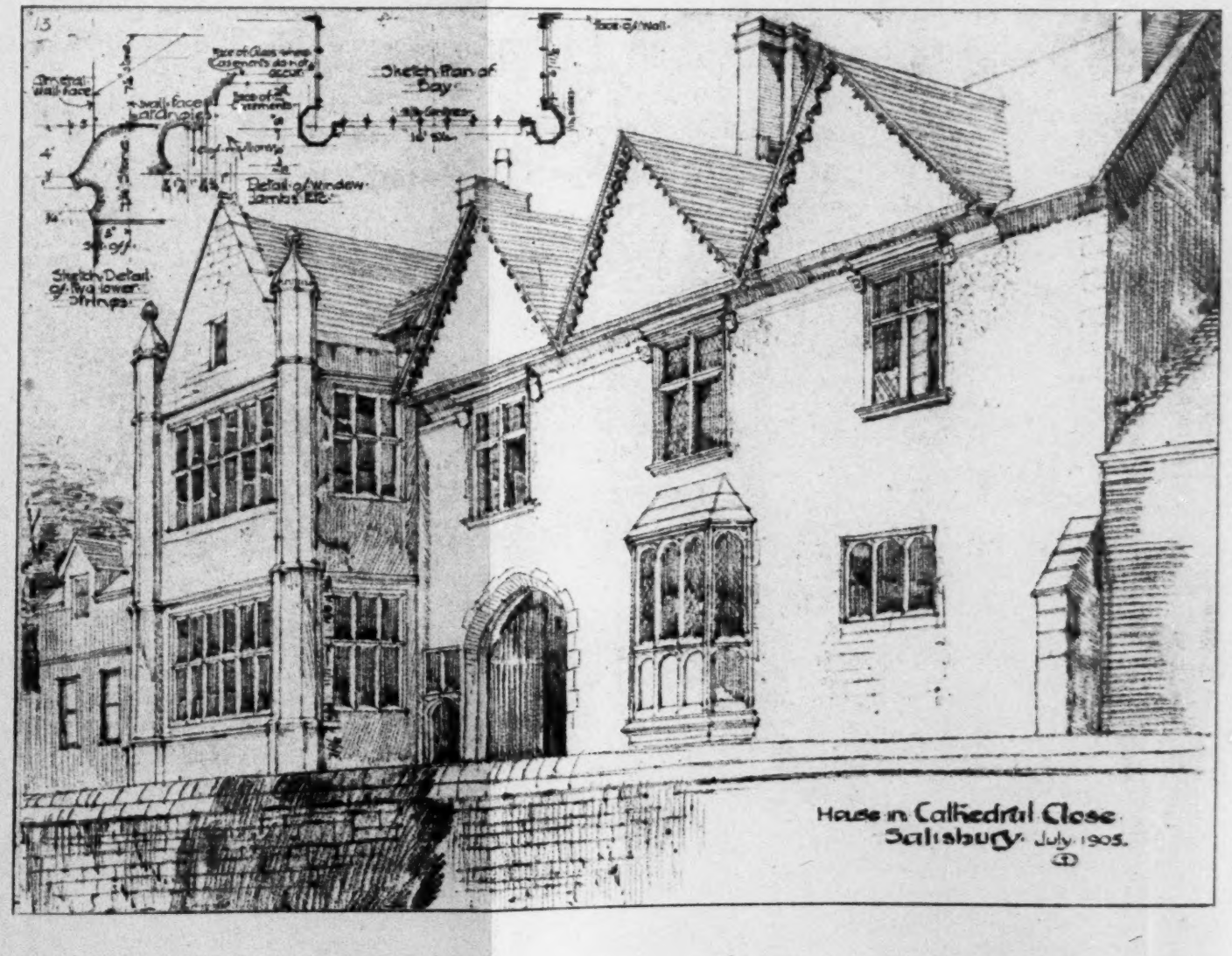
E HALL, SHORNE.—MR. R. WEIR SCHULTZ, ARCHITECT.


Bradford Abbas
Dorset
Porch in Ruins
July 1. 1905.

Church at Kingscliffe
Northants. 21/7/04.

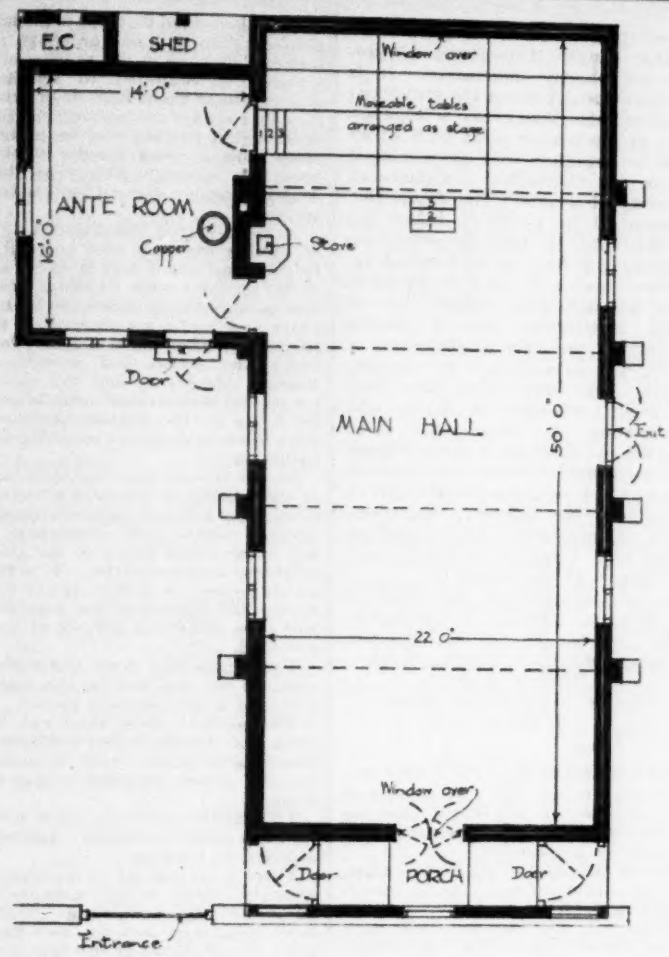

Grammar School
Burton Latimer 15/7/04.





"INK-PHOTO" SPRAGUE & Co. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

OME "PUGIN" SKETCHES.—By Mr. Geo. Drysdale.



Village Hall, Shorne. Plan.

the hall. The bricks were supplied at cost price from Lord Darnley's brickfield, and sand and gravel were supplied by Lord Darnley from his pits for the digging. The site was presented by Mr. George Arnold, Mayor of Gravesend. Three estimates were obtained from local builders, the difference between the highest and lowest being 6*l*.

The work was carried out by Mr. J. Martin, builder, of Meopham, who submitted the lowest estimate. The architect was Mr. R. Weir Schultz.

SOME "PUGIN" SKETCHES.

We have not been able to get a reply from Mr. G. Drysdale in regard to these sketches, which we believe were made in competition for the Pugin Studentship, or were sketches made afterwards in the capacity of Pugin student. However, they are good and interesting sketches, which is the main point, and speak for themselves.

Trade Catalogues.

The Birmingham Guild of Handicraft send us their illustrated price-list of electric radiators. As might be expected, the simple but well-designed metal-work of these offers a refreshing contrast to the style of the so-called "ornamental" radiators offered by most of the shops dealing in these articles.

The Chicago Pneumatic Tool Company send us a pamphlet of more than 100 pages describing and illustrating various types of their Franklin air compressors, specially suited to the operation of pneumatic tools and machinery. The greater part of the book is devoted to the structural details, dimensions, and capacities of the compressors made by this firm. Our readers will probably be more interested in two or three pages dealing with the air-lift method of pumping water by the direct application of compressed air in artesian and bored wells, and the direct-displacement method of moving or raising water from dug wells, streams, or rivers.

We have received from "Simplex Conduits, Ltd.," a carefully-arranged price-list of their screwed conduits. It also contains a complete list of all necessary accessories. The Company issue three pocket price lists. The "red book" contains a catalogue of light gauge conduits and fittings for "socket" junctions. The "blue book," which they now send us, describes screwed conduits, and the "grey book" describes the Simplex continuity system with socket junctions. Each of the lists is quite complete in itself, and so estimates can be rapidly made on any of the three systems, and the difference in the price will often enable the architect or electrician to decide which system is the most desirable to adopt in the given circumstances. We call attention to the Simplex flush mounting-boxes for switches, wall-sockets, ceiling-roses, etc. They are very suitable for sunk work in plaster, and reduce the necessary channelling out of the brickwork to a minimum.

Messrs. Nicholls & Clarke have sent us a copy of their new "Ironmongery Catalogue, No. XI." It is a well-bound quarto volume of 535 pages, fully illustrated and priced, and contains a complete index. The contents are divided into twenty sections, including ranges and range-boilers; mantelpieces of cast-iron, wood, slate, and marble; fire-grates of many kinds, including tiles and curbs; stoves for coal and gas; radiators for gas, steam, and hot water; boilers and fittings for heating apparatus; cast-iron gates, railings, gutters, manhole-covers, etc.; metal casements and sashes; stable-fittings; tools; garden furniture, balusters, etc.; builders' ironmongery and brasswork; electric bell and light fittings and crank-bell fittings; wire netting, corrugated iron, etc.; and some tables giving the weights of bolts and nuts, coach-screws, bar-iron, sash-weights, steel joists, angles, channels, etc. A large number of the illustrations are from half-tone blocks, and many of the designs for mantelpieces and mantel-registers and for door-furniture are decidedly above the average. We have pleasure in recommending the catalogue to architects and to builders.

Messrs. Barford & Perkins (Peterborough) have sent us a copy of their latest catalogue of "Steam Cooking, Heating, and Laundry Appliances and Disinfectors." It contains many excellent illustrations, some of which are drawn to scale. About fourteen pages of the catalogue are occupied by copies of testimonials received from the officers of public institutions and from the owners or managers of hotels and factories in which the firm's appliances have been used. The catalogue contains seventy-nine pages, and in addition to the apparatus mentioned in the title includes some heating and ventilating appliances suitable for use in kitchens, laundries, and other buildings.

We have received from Messrs. Johnson & Phillips (Charlton, Kent) a copy of their circular entitled "Paterson's Bitumen Dampcourse," and also a sample of the dampcourse itself. The material is about $\frac{1}{8}$ in. thick, and appears to consist of coarse canvas coated thickly on both sides with bitumen. It is very pliable, and waterproof joints are (it is said) easily made, so that the material can be used for covering roofs and lining walls.

Messrs. W. G. Cannon & Sons have sent us a copy of their catalogue of 122 pages, containing illustrations and prices of gas, steam, hot-water, and other fittings. It is divided into a number of sections, including sterilisers and body racks for hospitals and mortuaries, radiators and valves, cold and hot water supply fittings, kitcheners, steam-cooking apparatus, boilers for ranges and for heating apparatus, incandescent gas-fittings, etc. Attention may be drawn to the firm's horizontal copper gas-boilers, and to their tubular "back-boiler and flue combined" for fixing behind an ordinary fire for the purpose of warming other rooms by means of pipes and radiators.

From the well-known firm of Messrs. Hartley & Sugden (Halifax) we have received a copy of their new catalogue of boilers, cylinders, calorifiers, radiators, valves, and other fittings for heating apparatus, including low-pressure hot water and low and high pressure steam. A special feature is the series of illustrations of their "White Rose" sectional cast-iron boiler, which is now made in sizes calculated to heat from 250 sq. ft. to 6,700 sq. ft. of radiating surface. The catalogue contains two short illustrated articles by Mr. Frederick Dye on "Warming Buildings by Low-pressure Hot-water and Steam," and also some useful tables for heating-engineers. Reference would be facilitated by a proper index.

We have received from the Carron Company (Carron, Stirling) three leaflets, which describe and illustrate three of their new productions—namely, (1) the "Carron" electric radiator, which consists of four luminous heating lamps in a neat cast-iron body; (2) the "Carron" interior grate, with low front bars and "Teale" back; and (3) the "Carron" register grate, which is fitted with a bath-boiler at the back and a firelump above, and has a damper, so that the draught can be made to pass under the boiler.

From the same firm we have received a copy of their large catalogue of 140 pages, which contains a comprehensive series of illustrations of the "Carron" cooking apparatus for gas, steam, and coal. Cooking appliances of nearly every kind are illustrated and described from the "fish and potato fryer" to the elaborate fittings for a large asylum. The steam and gas apparatus are particularly interesting, and the catalogue as a whole will be very useful to architects and engineers.

The Carron Company have also sent us a copy of their catalogue, entitled "Select Designs in XVIII. Century Fire-grates." The designs are adapted from original carvings executed at Carron over a century ago by William and Henry Haworth, students of the Royal Academy, under the presidency of Sir Joshua Reynolds. Among the designs are interiors (arranged now with modern fire-backs), hob-grates, and dog-grates; the detail is almost invariably refined, and many of the designs are of great merit.

It was a happy idea to adapt the designs to modern requirements, and the catalogue is well worth the attention of architects.

The Phœnix Electric Heating Company claim that in the successful application of electricity for many industrial and domestic purposes they have made a distinct advance, and the catalogue of 104 pages which they have sent us appears to bear out their claim. Among the fittings illustrated are ovens and cookers of many kinds, cooking utensils, radiators, sterilisers, electric baths, vulcanisers, drying tables, and cylinders, etc. The catalogue contains a full index and is bound in a well-designed red-cloth cover with white ornamentation.

Mr. John Jones's new catalogue of "Sanitary Fittings" is an excellent production of about 330 pages, clearly printed on smooth paper, fully illustrated, and well bound in green cloth. It consists of three sections, the first (ninety-nine pages) comprising cast-iron traps, inspection-chamber bottoms and covers, sewer valves, ventilating shafts, soilpipes, rainwater goods, etc.; the second (twenty-four pages) dealing with stoneware drain-pipes, traps, gullies, etc.; the third (fifty-eight pages) including baths, lavatories, water-closets, sinks, urinals, hospital and laboratory fittings, etc.; and the fourth (twenty-six pages) containing illustrations and particulars of testing and flushing appliances for drains and sewers, sanitary and water carts; sewage-pumps, etc. The drainage by-laws of the London County Council are printed as an appendix. The catalogue contains a good index, and can be recommended as a useful and up-to-date work of reference.

We have received from the Farringdon Works (H. Pontifex & Sons) a copy of their "1906 Sanitary Supplement"—a catalogue of forty pages, containing half-tone illustrations of high-class baths, lavatories, and other sanitary fittings, nearly all of which are made by the J. L. Mott Ironworks, New York. The catalogue also contains illustrations of the Farringdon "Cupride" casements and frames, which are made of wrought-iron entirely covered by a heavy electro deposit of a non-corrodible alloy resembling gun-metal.

BOOKS RECEIVED.

HOUSES AND GARDENS. By M. H. Baillie Scott. (Geo. Newnes, Ltd. 31s. 6d.)

BUILDING CASES: BEING A DIGEST OF REPORTED DECISIONS. By F. St. John Morrow, LL.D. (Butterworth & Co.)

REINFORCED CONCRETE. By Charles F. Marsh, M.Inst.C.E., and William Dunn, F.R.I.B.A. (Archibald Constable & Co. 31s. 6d.)

THE ANCIENT CROSSES AND HOLY WELLS OF LANCASHIRE. By Henry Taylor, F.S.A. (Sheratt & Hughes, Manchester. 2*l*. 2s.)

Correspondence.

SAN CLEMENTE, ROME.

SIR,—May I be allowed to call your attention to the appeal which has just been issued to the public for the preservation of the Basilica of San Clemente in Rome? Below the present church is an earlier one, erected in the IVth century A.D., and below that remains of structures of the Republican and Imperial periods, the former consisting of two massive walls of tufa, forming a right angle, and the latter, at a slightly higher level under the apse of the lower church, of three chambers of brickwork, which perhaps belong to the house of the saint himself, one of which is a shrine of Mithras. These structures, owing to the infiltration of water, have been inaccessible for some thirty years (they, with the lower church, were excavated by Prior Mullooly in 1858-69), and it is certain that considerable damage is being done to the foundations; the damp, too, is destroying the frescoes of the lower church, which extend over a long period (Vth to Xth centuries), and are of great interest and importance. The upper church, too, is one of the best preserved christian basilicas of Rome, the apse containing interesting mosaics of the XIIth century, fine choir screens and pulpits from the lower church, and some fine frescoes by Masaccio. It will thus be seen that it would be a real disaster if the church were allowed to collapse—an event of which there is considerable danger if measures to prevent it are not shortly undertaken. It is proposed to permanently drain the structure; but the technical difficulties of the scheme are considerable, as the nearest point with which the drain can be connected with the municipal system is near the Colosseum, a distance of nearly a quarter of a mile. The drain, too, must run some 30 ft. to 40 ft. below the surface of the road, so that tunnelling instead of cutting will have to be resorted to. The committee, bearing in mind the probable difficulties of keeping such a tunnel clear of water during construction, are of opinion that, including all probable contingencies, a sum of 1,500*l*. will be necessary for carrying out the work. Two committees have been formed—a local committee in Rome, and another consisting of those who have promised to use their influence in the British Empire and the United States. As a member of the former, which is under the Presidency of His Excellency the British Ambassador, and includes representatives of all nations and denominations, I beg to appeal to your readers for support to the scheme.

Donations may be sent to the Bank of England, Western Branch, Burlington-gardens, W.; or to Mr. C. C. Morgan, H.B.M.'s Consul, 20, Via Condotto, Rome.

THOMAS ASHBY,
Director of the British School at Rome.

THE INSTITUTE MEETING ON THE 3RD.

SIR,—I am sorry to see that your account of last Monday's meeting at the Royal Institute of British Architects is absolutely inaccurate as far as my resolution is concerned.

That resolution contained no qualifying clause, which latter was added and passed as an amendment proposed by Mr. Riley.

I, in common with most architects who have considered the matter, am of the firm opinion that (as a broad principle) the employment of officials *whether qualified or not* is detrimental to the interests of architecture, and whatever may be the decision of any one meeting I believe that that opinion will in the end prevail among architects.

HERBERT W. WILLS.

*** We are not responsible for the report. The press are not admitted at the business meetings; the report is only what the Institute furnishes officially.—ED.

RECONSTRUCTED LIMESTONE.

SIR,—In your issue of November 24 (page 595) there appeared a short article under this heading. Will you kindly allow me to make a few comments on the subject.

This invention seems to be another of the many processes for the manufacture of artificial stone and marble which during the last half century have produced amongst others the following patents:—Bousfield's, 1856; Ransome's, 1860; Barff's, 1861; Owen Stone Co., 1890; Moreau-Rae, etc. The majority of these, however, appear to have sunk into obscurity and are now seldom heard of.

The process of making this new material appears to be very subtle and complex, infinite pains seem to have been taken to produce an imitation stone that must at the best appear unnatural, and the supposition that the chemical elements will enter into union with the constituent parts of the stone may sound correct in theory but doubtful in practical value. For with our limited knowledge of how Nature works in her wonderful and mysterious combinations, especially in the formation of stratified rocks, that have taken countless ages to produce, it would seem impossible to make successfully an artificial stone in a few days, and, when made, to depend upon its lasting properties.

Definite statements have been made as to the properties of this new material—for instance, its "possessing greater strength and density than the natural stone"; but we are absolutely ignorant of its essential characteristics, such as its power of absorption—a most important factor in enabling us to estimate its comparatively durability.

Some information also should be forthcoming as to the resistance to crushing of this new stone; a considerable pressure is sometimes concentrated upon certain points in a building, hence this data is important. Its weathering properties—this would be hypothetical; and, lastly, is it cheaper in price? Good building limestones can be obtained at the quarries from 1s. per ft. cube, so that it would be necessary to produce it as cheaply as this in order to compete with the natural stone.

It may, however, be stated that the harder and denser the stone, the more costly will be the working.

It is also stated that this artificial stone can be moulded "to any size or shape during manufacture," but, as in the process of making this material is subjected to hydraulic pressure, it is presumed the moulds or matrices are of cast iron, or a similar composition, to resist the stress; if so, would not the cost be prohibitive, unless there were a great number of blocks prepared from one mould? This repetition, moreover, would not often commend itself to the present-day architect.

As before stated, this artificial stone in one form or another has been used sparingly for the last half-century, and it may be safely said with little or no success; some buildings having dressings and balustrading of this material have of recent years come under my observation (erected about twenty-five years since) and they have weathered badly, the arrises and mouldings being now scarcely discernible, and the appearance when contrasted with natural stone is extremely poor, for it has not the inherent qualities, nor does it show the nice, delicate weathering associated with natural stone.

In the Moreau-Rae imitation marble a block of chalk, Bath, or Portland is immersed in tanks containing coloured pigments and sulphates of various metals, and afterwards immersed in hot water which assists in the alteration of the sulphates into carbonates. It is then indurated, which process, it is said, is not confined to the surface but penetrates the interior of the stone, and when completed a block of marble has been produced.

The change the stone undergoes is mainly a chemical one, but how far this material has been a success is not generally known.

The method here employed in converting chalk and limestone into a harder material like marble is simplicity itself in comparison to the complex course disclosed in this new imitation stone.

The question naturally arises, is there any need for these artificial stones? And what advantage is gained by their use?

There is no scarcity of limestones, but, on the contrary, there is an unlimited supply, the durability and weathering qualities of which have been tried and are well known, and the price can, or should at any rate, compare favourably with any manufactured stone, therefore bearing in mind the maxim, "Better bear the ills we have than fly to those we know not of," would seem to apply suitably to this new material.

W. R. PURCHASE.

THE LETCHWORTH EXHIBITION AND CHEAP COTTAGES.

SIR,—In view of the statements made at the examination in bankruptcy of a builder at Luton who had erected a cottage at the Letchworth Exhibition which was represented to have cost 180*l*., which in reality cost 240*l*., and your remarks thereon, I must say a word as to the possibility of erecting such at an actual cost of 180*l*. and less. This, in my experience, is no matter for surprise, having had such cottages—containing six rooms—built from my design both in red brick and rough-cast on brickwork, and covered with flat tiles, with solid frames and lead glazing, and in which only the best materials were used, for 160*l*. each in pairs and 180*l*. detached, including outbuildings and distempering to walls, ready for occupation. Besides which I have at the present time a bungalow in course of erection with similar accommodation and covered with best Broseley tiles, for which the contract is only 198*l*. I felt impelled to write this, as I feared the public might be led to think that all "cheap cottages" are frauds; but I am prepared to prove my figures by actual estimates from respectable and reliable builders.

Ipswich. H. STEWARD-WATLING.

The Student's Column.

ROOFS: STRUCTURALLY CONSIDERED.—XXI.

21. *The Complete Design of a Timber Truss (continued).*

TO determine the requisite thickness of the base-plate for transmitting the horizontal strain from the point of application to the two projecting ribs settled last week, we must take into account the compressive and tensile resistance of the material. Data as to the strength of cast-iron are given in Tables XLIV. and XLV.

Next, as the diagonal force 34,500 lb. is applied at the centre of the base-plate, its horizontal component, 28,700 lb., may be considered as being divided over the two halves of the plate, one of which will be in compression and the other in tension.

Taking the safe tensile strength of cast-iron at 18,000 ÷ 6 = 3,000 lb. per square inch (see

Table XLIV.), the area of metal required to resist the force of 28,700 ÷ 2 = 14,350 is

$$\frac{14,350}{3,000} = 4{\cdot}78 \text{ sq. in.}$$

Let us take the minimum depth of the sides of the housing just above the downward projecting ribs at ¾ in., the thickness of the sides ½ in., and the width of the base-plate at 6 in.

The two sides of the housing represent the cross-section of 2 (0·75 × 0·5) = 0·75 sq. in., and the sectional area of the base-plate must be 4·78 − 0·75 = 4·03 sq. in. As the width of the plate is 6 in., the required thickness is 4·03 ÷ 6 = 0·67 in.

Therefore, the base-plate would be made ¾ in. thick.

TABLE XLIV.—ULTIMATE TENSILE STRENGTH OF CAST-IRON.

Pounds per Square Inch.			Authority.
Highest.	Lowest.	Mean.	
9·76	6·0	7·37	Hodgkinson
10·5	4·9	6·83	"
15·3	4·2	10·4	Woolwich
—	—	13·7	Wade
—	—	9·1	"
15·7	4·75	—	Turner
18·2	6·5	15·3	Rosebank F'ndry

TABLE XLV. — ULTIMATE COMPRESSIVE STRENGTH OF CAST-IRON.

Pounds per Square Inch.			Authority.
Highest.	Lowest.	Mean.	
52·502	25·198	38·525	Ordinary
70·827	53·329	59·522	Stirling's (C.-I. & W.-I. mixed)
51·50	36·50	44·30	Cold Blast
64·90	36·90	45·80	Hot Blast

At the compression end the resistance offered by a base-plate ¾ in. thick and by the upper part of the shoe is far more than sufficient, for, in accordance with the figures in Table XLV., we may take the permissible compressive stress at 90,000 ÷ 6 = 15,000 lb. per square inch, or five times that of the metal in tension.

Turning to the rafter, we find on reference to Fig. 163 that the toe is completely housed in the cast-iron shoe, the abutment consisting of an angular thrust-block with the area of 6 × 5 = 30 sq. in. perpendicular to the axis of the rafter.

This being also the effective area of the rafter toe, the safe resistance to crushing is

$$1,600 \times 30 = 48,000 \text{ lb.},$$

which is far greater than 34,500 lb., the compression to be resisted, and actually only involves the strain upon the timber of

$$34,500 \div 30 = 1,150 \text{ lb. per square inch.}$$

The next thing to consider is whether the tie-beam is safe against crushing across the fibres of the timber.

The vertical component of 34,500 lb. is 34,500 *cos* 56° 20′ = 19,100 lb. (see Fig. 162)' and as by *par.* (*a*) the permissible stress is 350 lb. per square inch, the bearing surface to be provided by the base-plate of the shoe is

$$19,100 \div 350 = 54{\cdot}6 \text{ sq. in.}$$

Without reckoning the two downward projecting ribs, the base-plate measures 2 ft. long and is 6 in. wide. Wherefore it provides so ample an area that compressive stress in the timber is reduced to

$$19,100 \div (24 \times 6) = 133 \text{ lb. per square inch.}$$

The two bolts passing through the base-plate and the tie-beam are merely required to hold the shoe in position, and need not be of more than ¾ in. diameter. But it should be remembered that these bolts also serve a useful purpose in guarding against the gradual opening of cracks in the timber. For this reason they should be provided with washers of ample area, so that the nuts may be screwed up tightly without unduly crushing the fibres of the timber.

Fig. 164 is another modification of the shoe generally illustrated in Fig. 160 to suit the case of a tie-beam terminating practically at the point of intersection of the axes of the rafter and the tie-beam.

Here the plane along which shear takes

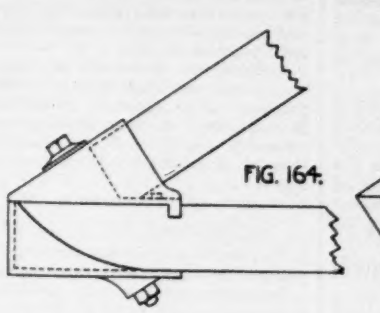


FIG. 164.

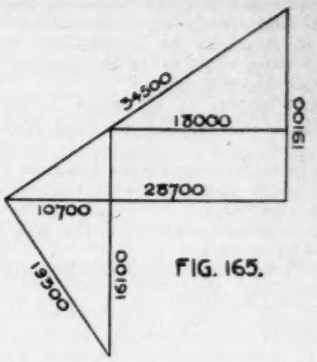


FIG. 165.

place is 1 ft. 8 in. long by 6 in. wide, and the safe resistance to shear is

$$150 \times 20 \times 6 = 18,000 \text{ lb.}$$

The rib projecting 1½ in. downwards from the base-plate of the upper shoe must have the thickness necessary to withstand the bending moment due to this force, the resistance being calculated as before, but, as there is only one rib, the entire force of 18,000 lb. (see Fig. 165) is taken into account.

Then, considering the rib as a cantilever in which (*d*) = the thickness of the rib,

$$M = \frac{18,000 \times 1{\cdot}5}{2} = 13,500 \text{ in.-lb.}$$

$$R = \frac{6,000 \times 6 \times d^2}{6}$$

$$= 6,000\, d^2$$

whence, the required thickness

$$d = \sqrt{13,500 \div 6,000} = 1{\cdot}5 \text{ in.}$$

The resistance of the rib to shear must be more than the safe shearing stress of the metal, say, 15,000 ÷ 6 = 2,500 lb. per square inch, as in Article XX.

The force to be resisted is 18,000 lb., and the area of metal is 6 × 1·5 = 9 sq. in. Hence the stress per square inch is only 18,000 ÷ 9 = 2,000 lb., which is perfectly safe.

The thickness of the base-plate to transmit the horizontal force of 18,000 lb. from the point of application to the downward projecting rib may be ¾ in. as before.

The rafter toe is amply secure against crushing, but the effective strength of the joint is limited by the resistance of the tie-beam against shear.

If the lower shoe could be relied upon to press against the end of the tie-beam, we should have at hand a simple means of providing for the balance of the horizontal component of the thrust along the rafter. But shrinkage of the timber and the effects of various forces acting on the tie-beam tend to pull it away from the end of the shoe. Hence we have to provide in some other way for withstanding the horizontal force of 28,700 — 18,000 = 10,700 lb.

As shown in Fig. 165, the component of 10,700 lb. in a direction perpendicular to the axis of the rafter is 19,300 lb., which can be calculated thus :—

$$10,700 \div \cos 56° 20' = 19,300 \text{ lb.}$$

To withstand this a bolt can be applied, as in Fig. 164, with the net sectional area of

$$19,300 \div 16,000 = 1{\cdot}208 \text{ sq. in.}$$

Reference to Table XL. shows that a 1¼-in. diameter bolt is necessary for this area.

If preferred, a horizontal loop could be passed round the end of the tie-beam holding in place a bearing-plate near the upper surface, so as to take the balance of the horizontal force 28,700 — 18,000 = 10,700 lb.

Making the loop of a round steel bar with screwed ends passed through lugs on the shoe base and secured by nuts, the necessary cross-sectional area would be

$$10,700 \div 16,000 = 0{\cdot}67 \text{ sq. in.}$$

By Table XL. the diameter of the loop would have to be 1¼ in., so as to provide the requisite area of metal at the bottom of the screws.

Compression across the grain of the tie-beam must be limited by the bearing surface of the base-plate.

The vertical component of 19,300 is 19,300 *cos* 33° 40′ = 16,100 lb. (See Fig. 165.)

The length of base-plate being 20 in. and its width 6 in., we have

$$16,100 \div (20 \times 6) = 134 \text{ lb. per square inch,}$$

which is much less than the permissible unit stress of 350 lb.

At the under surface of the tie-beam the timber is so obviously safe against undue compression that no calculation is necessary.

TABLE XLVI.—VALUES OF THE COEFFICIENT OF FRICTION.

Surfaces in Contact.	Disposition of Fibres.	Condition of Surfaces.	Coefficient of Friction.
Oak on oak	Parallel	Dry	0·48
Do.	Perpendicular	Dry	0·34
Do.	On end, on side	Dry	0·19
Oak on other timber	Parallel	Dry	0·36 to 0·4
Wrought-iron on oak	Parallel	Dry	0·62
Do.	Parallel	Wet	0·26
Cast-iron on oak	Parallel	Dry	0·49
Do.	Parallel	Wet	0·22
Wrought-iron on elm	Parallel	Dry	0·25
Cast-iron on elm	Parallel	Dry	0·20
Timber on stone	—	Dry	0·40
Metal on metal	—	Dry	0·15 to 0·2
Do.	—	Wet and clean	0·30
Do.	—	Damp and slimy	0·14

TABLE XLVII.—COMPARISON OF TIE-BEAM AND RAFTER JOINTS DISCUSSED IN PAR. (*j*).

No.	Fig. No.	Horizontal Thrust Taken by		Remarks.
		Timber.	Metal.	
		lb.	lb.	
1	123 and 157	14,400	14,300	All stresses within permissible limits.
2	124 and 158	28,700	—	All stresses within permissible limits providing double abutment acts as intended.
3	125 and 160	28 700	—	Do.
4	125 and 162	14 400	14,300	Compression across rafter and tie-beam excessive.
5	126 and 163	14,400	14,300	Do.
6	127	12,900	15 800	Compression across rafter and tie-beam excessive
7	127 and 164	12,900	15,800	Compression across tie-beam excessive.
8	128	14,400	14,300	Dimensions of screws for bridge-plate too unwieldy.
9	129 and 165	28,700	—	All stresses within permissible limits.
10	129 and 166	18,000	10,700	Do.

(*k*) *Friction.*—No account has been taken in any of the foregoing calculations of friction, but it ought to be realised how important a factor this is as an element of safety in roof construction.

Three main points to be borne in mind with regard to the friction of solid bodies are—

(1) That it is directly proportional to the force with which the surface of the bodies are pressed together.

(2) That it is independent of the area of the surfaces in contact.

(3) That it is proportional to the nature of the surfaces in contact.

Therefore the friction (F) between any pair of surfaces is computed by multiplying the force (P) pressing them together by a factor (f) termed the *coefficient of friction;* or, expressed algebraically,

$$F = P f \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (32)$$

Some values of the coefficient of friction are given in Table XLVI., where the constants refer to the *friction of motion*, which should always be taken into account instead of the *friction of repose* in dealing with structures liable to vibration.

Example (1): Find the total friction between the foot of a rafter and the top of a tie-beam, the foot of the rafter being pressed against the tie-beam by the force of 20,000 lb.

By Table XLVI.

$$f = 0{\cdot}19.$$

Then

$$F = 20{,}000 \times 0{\cdot}19 = 3{,}800 \text{ lb.}$$

Example (2): Find the friction between a wrought-iron bolt-plate and the upper surface of a rafter, the tension in the bolts being 40,000 lb. and the value of f by Table XLVI. = 0·62.

Then

$$F = 40{,}000 \times 0{\cdot}62 = 24{,}800 \text{ lb.}$$

Example (3): Find the friction between the base-plate of a cast-iron rafter shoe and the upper surface of a tie-beam, the vertical component of the rafter thrust being 20,000 lb.

In this case f = 0·49, and

$$F = 20{,}000 \times 0{\cdot}49 = 9{,}800 \text{ lb.}$$

(*l*) *Comparison of Joints Discussed in Par.* (*j*).—With the object of facilitating a decision as to the most suitable form of joint for the present roof, we give in Table XLVII. a brief comparison summarising the main characteristics of the joints previously considered.

There is no theoretical objection to No. 1, but, owing to the number of bolts employed, the joint is somewhat costly.

Nos. 2 and 3 are inadvisable, because of the general unreliability of double abutment joints.

Nos. 4, 5, 6, and 7 cannot be recommended, owing to excessive stresses.

No. 8 is objectionable for practical reasons.

No. 9 is satisfactory and economical.

No. 10 is also satisfactory, but, being intended for a special case, is less economical than No. 9.

For our present purpose, therefore, choice lies between Nos. 1 and 9, and it does not require much reflection to realise that the latter is the more suitable joint, being more simple and, taking all things into account, less costly than the other. It has the further recommendation that no holes are required through the rafter and only two small holes through the tie-beam.

METROPOLITAN WATER BOARD.

AT the sitting of the Metropolitan Water Board, last week, it was resolved to wharf with creosoted timber about 2,813 ft. of the New River banks at Anwell-hill, Carterhatch-lane, Highfield-row Bridge to Hornsey, at an estimated cost of 662*l.* It was also resolved to expend 394*l.* on constructing an unclimable oak palisade fencing along the New River between Barrowell Green-lane to Hazlewood-lane, Southgate.

Honour Oak Reservoir.—In connexion with the acceptance of the tender of Messrs. Moran & Son for additional work at the Honour Oak Reservoir, rendered necessary by the nature of the subsoil, the contractors had written stating that they had misinterpreted the terms of the contract with regard to the brick-facing of concrete, and asking that the amount of their contract should be increased by 692*l.* 17s. 1d. The engineer was of opinion that it was a case of genuine misinterpretation, and that the request was fair and reasonable, and it was resolved to allow of the alteration in price.

Building at Heston.—The General Purposes Committee reported that the Standard Land Company were about to develop Sutton Farm, Heston, and it was recommended that the company be granted an easement over the Board's land adjoining on payment of 500*l.*—Agreed.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the Metropolitan Asylums Board was held last Saturday.

Loan Requirements.—In compliance with the request of the London County Council the Finance Committee submitted their estimate of loan requirements for 1907, amounting to 250,000*l.* This included the following loans for which sanction has been given:—Leavesden Asylum—irrigation work, 670*l.*; Tooting Bec Asylum—additional buildings, 26,250*l.*; Belmont Asylum—electric lighting and telephones, 450*l.*; South-Eastern Hospital—reconstruction, 11,678*l.*; Southern Hospital—buildings, furnishing, etc., 54,312*l.*: total, 93,360*l.* The following was the estimated cost of works approved but for which sanction to borrow has not yet been received from the Local Government Board:—Central Stores—new premises at Peckham, 18,000*l.*; Bacteriological Laboratories—ditto, 9,090*l.*; Darenth Asylum—industrial workshops, 3,500*l.*; Joyce Green Hospital—cottages, reception station, etc., 7,030*l.*; Belmont Asylum—adaptation of boys' school (architects' approximate estimate for building works, 69,500*l.*; Engineer-in-Chief's approximate estimate for engineering works, 22,600*l.*; to the former amount commission, clerk of works' salary, etc., fall to be added), 100,000*l.*: total 137,620*l.* After some discussion the estimate was agreed to.

Architects' Commission.—The Works Committee reported at some length the negotiations which have taken place with Messrs. T. Dinwiddy & Sons, the architects who prepared the plans for adapting part of Belmont Asylum for the accommodation of male imbecile patients. The first scheme was abandoned, and the question arose as to the amount of the architects' commission. It was now reported that a settlement had been arrived at on the terms of the Board paying 1,750*l.* to the architects.

LIGHTNING CONDUCTORS.

ON the 6th inst., Mr. Alfred Hands, F.R.Met.S., delivered a lecture before the Royal Engineers at Chatham on "The Protection of Buildings from Lightning." He showed the extent of damage by lightning by means of a chart of England and Wales on which the positions and nature of objects damaged during a period of about nine years were indicated by coloured spots. This included 2,485 buildings, of which 148 were churches. He criticised the Report of the Lightning Research Committee, which, he said, by its contradictory recommendations and incorrect statistics, had caused a great deal of scepticism as to the utility of lightning conductors. He showed by diagrams and reproductions on models of buildings of cases that had occurred some of the more complex lightning effects that had to be guarded against and the methods of protection that had to be employed. These included fires caused by the surging effect of a discharge and cases in which damage is caused to a building by lightning striking an object half a mile away.

The lecturer showed the impossibility of protecting buildings efficiently by means of set rules; each case had to be studied separately, and the system of protection applied which the complications of metal in and about the structure showed to be necessary. Hitherto too much importance had been attached to the form and composition of the conductor and too little to the fact that its efficiency depended almost entirely on the way in which it was applied and very little on what it was. He regarded the subject as somewhat analogous to the work of a medical practitioner. The conductors in the hands of an expert were comparable to the drugs a physician might find it necessary to prescribe according to his diagnosis of the case. No one could claim infallibility, and anyone might overlook some factor that might have an important bearing on the case; but the fact remained that the possession of knowledge, experience, and an ability to discriminate as to the importance of details should enable a man to protect a building effectively, while absence of these would very probably result in failure. At all events, it was in this direction he thought we should strive to improve our methods and not in trying to devise theoretically perfect, but practically impossible mechanical ones.

As regards the relative value of iron and copper for conductors, he considered the matter, so far as concerned conductivity and the dissipation of energy, to be of such trifling importance that it sank into insignificance in comparison with considerations of durability. A lightning conductor was expected to last for a long time, and iron was unfortunately too perishable for the purpose. As regards cost, an iron system, if of sufficient size to be fairly lasting, would be more costly than an ordinary copper tape one.

Mr. Hands said that vagaries or freaks of lightning were an impossibility, and the belief in such was due only to the cases being wrongly reported. There were laws governing all natural phenomena, and lightning, like every other force in Nature, must be amenable to law. Where they appeared at first sight inexplicable we should try to clear up the mystery and not dismiss the matter by saying that in one respect Nature was erratic.

TESTS OF FIRE EXTINGUISHERS.

A REPORT issued by the British Fire Prevention Committee contains particulars of the first tests undertaken by that useful organisation of a portable hand fire-extinguisher, and it is interesting as showing the efficiency of the particular apparatus under examination in quenching outbreaks of fire in the initial stage. Fifteen tests were made in all with the object of observing the effect of the appliance upon fires started at a dressing-table with curtains above; in a crate of loose wood wool; in a heap of rubbish consisting of hay, straw, and chips of wood; in wood sprinkled with spirit and petrol; and in other readily inflammable substances. The extinguishers tested were of a type consisting of a tube filled with a dry powder which has to be thrown with as much force as possible into the base of the flame. The powder is of secret composition, but the makers state that its effect is to generate a gas in which combustion cannot be maintained. Whether this gas is of special character, or whether it is simply CO_2, we cannot say, but judging by the recent tests it is very efficacious in subduing flame. In the case of loose materials such as wood wool, hay, and straw, the powder was unable to prevent smouldering, which, as shown by some of the tests, resulted in fresh outbreaks of fire after the lapse of short periods of time.

Obituary.

MR. E. L. TARBUCK.—We regret to announce the death of Mr. Edward Lance Tarbuck, which took place at Brixton, S.W., on the 22nd ult. He was a Silver Medallist of the Institute of British Architects, and in his younger days an assistant in the offices of Sir Charles Barry, Sydney Smirke, R.A., and other eminent men of that time. Some years ago he was a contributor to this journal on the (then) "Present State of Architecture," and other subjects. He was editor of some works on building, and the author of a "Handbook of House Property,"* now in its seventh edition.

General Building News.

RESTORATION OF THE ABBEY CHURCH, NUNEATON.—The rebuilt chancel of this church was recently reconsecrated by the Bishop of Worcester. From designs prepared by Mr. H. Brakspear, F.S.A., the chancel has now been built on the old foundations, and all remaining portions of the old walls have been incorporated with the new work.

CONGREGATIONAL CHURCH, SHEFFIELD.—A new Congregational Church has been erected at Crookes, Sheffield. The building stands on a triangular site at the junction of Springvale and Western roads, and is octagonal in plan. One of the eight sides is taken up by the rostrum, pulpit, and choir seats, and a space behind hereafter to be filled by the organ; round the remaining seven sides runs a continuous balcony, giving seating accommodation for more than 200 persons, in addition to the 500 who can be seated in the open seats on the floor of the church. There are windows on seven of the eight sides. The dome-shaped roof is supported on eight pillars, which also serve to sustain the weight of the balcony. The building is lighted by electricity, with gas as a stand-by. The cost was 5,600*l.*, exclusive of the organ. The architect was Mr. W. J. Hale.

CHAPEL EXTENSION, PONTYPRIDD.—The new hall and classrooms connected with the Congregational Church, Pontypridd, was opened a short time ago. The new building has been erected from plans prepared by Messrs. Pott, Son, & Hemmings, Manchester. The total cost will be 3,000*l.*, and the contractors are Messrs. Smith-Jones & Sons, Pontypridd.

SUNDAY-SCHOOL, PLYMOUTH.—New Sunday-schools have been opened in connexion with St. Jude's Church, Plymouth. The buildings adjoin the church-room. They consist of a room for infants, 40 ft. by 25 ft., two classrooms for Bible-class work, each 19 ft. by 18 ft., with separate entrances, a four-roomed caretaker's

* Crosby Lockwood & Co.

cottage, and improvements to the old offices, together with a new boiler-house. Mr. B. Priestley Shires was the architect. The contract was for 1,545*l.*

GRAMMAR SCHOOL, ASHBOURN.—The grammar school at Ashbourn, which is to supersede the old structure in Church-street, will be situated near the Green-road. Plans have now been prepared by Mr. E. M. Longsdon, architect, of Bakewell, and have been approved by the Board of Education. The buildings will have a south-east aspect, and owing to the contour of the ground the school is planned with a long frontage, and has as little depth from front to back as practical to avoid undue excavations. The front will be faced with gritstone, wallstone, and dressings, and the roof will be in brindled red tiles. The accommodation provides for 180 scholars in the classrooms—four classrooms for twenty-five each, two for thirty, and one for twenty students. The main entrance-doors open into a vestibule and thence into the entrance-hall, from which the corridors from the boys' and girls' entrances connect. Two stone staircases give access to the assembly-hall, which is 55 ft. by 27 ft., and first floor rooms, the former being planned behind the main line of the buildings, and is lighted on three sides. There are separate emergency exit doors, and on the ground floor are also rooms for the headmaster, clerk, assistant teachers, governors' board-room or reference library. In addition, there is a fireproof strong room for the valuable documents in possession of the governing body. On the first floor are the art-room, lecture-room, and laboratory. At each end of the main building are detached blocks, connected by a veranda, on the ground floor of which are the cloak-rooms for boys and girls respectively, also common-rooms for the pupil teachers, and separate staircases give access to the cookery-room and workshop. A living-room, two bedrooms, pantry, etc., are provided for the caretaker on the third floor of the tower. In the basement is situated the low-pressure hot-water boiler, drying-rooms, and general stores. All the rooms are provided, in addition, with open fireplaces.

TECHNICAL INSTITUTE, DUNDEE.—A site has been acquired in Bell-street by the Technical Institute Committee for the erection of the new school, for which 45,000*l.* has been subscribed. Mr. Robert Gibson, C.E. and architect, has been appointed general architect for the scheme. The buildings will comprise an administrative building facing Bell-street, with suites of lecture-rooms, laboratories, and trade workshops to the rear. At the meeting of the Institute committee it was resolved to afford local architects an opportunity of submitting designs for the elevation of Bell-street, and conditions for these will be arranged as soon as the preliminary scheme has been completed.

GLASGOW SCHOOL OF ART.—The proposal for the completion of the building of the Glasgow School of Art has, according to the *Glasgow Herald*, now taken definite shape. Details have yet to be considered, but a movement has been started for securing subscriptions for the purpose in view. Of the original plans for the school, fully one-half has been built and foundations laid for the remainder. Since the organisation of the Glasgow School of Architecture the classes in this subject have grown in number and importance, and more and better accommodation is urgently needed. The accommodation for the sculpture and modelling department is meagre and in many respects unsuitable, while the technical studios are housed in a temporary shed. There is no lecture theatre in the school, and the library is situated in a part of the school museum, the remaining portion of which is used as a classroom. Sir R. Rowand Anderson, LL.D., H.R.S.A., architect, in a report made to the Scotch Education Department, says:—"Although the building is a very large one, it is now too small. Many of the rooms are overcrowded and inconvenient to work in, and much moving about of furniture has to be done. The library is too small, and is not sufficiently isolated. At present it is little more than a recess off the main corridor." Mr. Pittendrigh MacGillivray, R.S.A., sculptor, reports:—"Increase of accommodation is very desirable for this (modelling) section, especially is there wanted a suitable workshop for casting and plaster work generally." The cost of the erection of the present building was 29,131*l.*, towards which subscriptions to the amount of 28,397*l.* were then obtained. The estimated cost of the proposed completion of the building is as follows:—Western extension, including furniture, fittings, etc., 22,000*l.*; new service stair in east portion of school, 680*l.*; cloakrooms and lavatories, 500*l.*; architects' and measurer's fees and sundry charges, 1,820*l.*—making a total of 25,000*l.*

MISSION-ROOM, THE GREENWAY, UXBRIDGE.—A new mission-room has been erected in the Greenway, in connexion with St. Andrew's, Hillingdon West. Messrs. Fassnidge & Son have carried out the work, under the direction of Mr. J. Freebairn Stow. The room is built of stock bricks, with red brick facings and Bath-stone dressings. The large hall is 75 ft. by 35 ft., with accommodation for 350 persons. There is a chancel, 20 ft. by 16 ft., and a vestry. The walls in the interior are of plaster, with dado and red brick facings, and the flooring is of wood blocks. The building is lighted with electric light, and is heated by a high-pressure heating system, the work for which was carried out by the Thames Bank Iron Works Company.

CHURCH INSTITUTE, PENARTH.—The opening of St. Augustine's Church Institute Hall, Penarth, took place a short time ago. The hall, which has been erected at a cost of 2,300*l.*, is situated in Albert-road, and is capable of seating about 600 people. The present building, which is only part of a larger scheme which is to be undertaken later on, consists of one main room and stage which, by means of shutters, forms a room of itself. There is another room of a corresponding size below the stage, and bath and lavatories. The front part of the hall still remains to be built, and will consist of an entrance-hall and two rooms, one on each side. Over the whole there will be one big room capable of being divided into three by means of revolving screens. The cost of these additions will amount to 1,500*l.* The architect is Mr. H. Snell, and the contractor Mr. John Jones, Penarth.

BUILDING IN EDINBURGH.—From one cause or another, Edinburgh this year has established a record in the number of its unlet houses (says the *Scotsman*). Statistics just made up by the burgh assessor show that there were 4,179 houses at May last which had failed to find tenants. The most notable feature of the figures is that, contrary to the experience of most large cities, the "unlets" are mostly small rented, working-class houses. Of the total houses unlet there is a proportion of over 70·8 per cent., or nearly four-fifths, of which the rents are under 20*l.* In 1,284 cases, or a little over 30 per cent. of the total, the rents are under 10*l.* There are 1,677 houses unlet whose rents are between 10*l.* and 20*l.*, and in 1,218 cases the rents are 20*l.* and upwards. There is another exceptional feature about the figures which have been made up by the assessor. The over-crowded part of the city does not appear to lie in the central districts. The "unlets" are distributed over both suburbs and centre; and the central districts provide some of the most outstanding cases of under-letting. The total valuation of the unoccupied houses is returned at 121,251*l.* 13s.—the total valuation of the city, exclusive of items under railways, tramways, gas, electric-lighting, water, telegraphs, and telephones, which are entered at 346,686*l.*, being 3,191,803*l.* The total number of unlet houses at the same date last year was 3,820, of which 1,871 were of 20*l.* rent or upwards; 1,658 were between 10*l.* and 20*l.*; and 1,191 were under 10*l.* The total for 1904 was 3,200.

YOUNG MEN'S CHRISTIAN ASSOCIATION PREMISES, LEEDS.—On the 3rd inst. the memorial-stone was laid of the new premises of the Leeds Young Men's Christian Association in Albion-street. The builders are Messrs. T. Hannam & Sons, Mr. W. H. Thorp being the architect. It is estimated that, leaving out of account the sum of 2,000*l.* paid for interest and rents, the cost of the land and building will be about 44,500*l.*

SWANSEA DOCKS.—In conjunction with Mr. Schenk, the local engineer, Mr. Meik, consulting engineer to the Harbour Trust, has framed proposals, which the authorities have adopted, for extending the dock accommodation under the existing scheme by using the water to be enclosed within the artificial embankment outside the new dock which is being constructed. The estimated cost of enclosing the water with a lock amounts to 30,000*l.*

POST-OFFICE, ABERDEEN.—The new post-office in Crown-street is now practically completed. The building was designed at His Majesty's Works Office, Edinburgh, and was erected under two contracts; the first comprising the excavations and the walls from the basement flat to the street level, and the second the superstructure. The building is of granite, the dressing being of white Kemnay granite and the ashlar work of Rubislaw granite. The extreme length is 220 ft., and the breadth 140 ft., and it comprises the Dee-street block, the Crown-street block, and a connecting block. The entrance to the public office is from Crown-street. One of the features of this department is the vestibule entrance, with its Austrian oak wainscot. The walls of the public office are lined with marble to a height of about 9 ft. The marble is surmounted by a wainscot cornice. The floor behind the counter is of maple wood blocks, while the part to be used by the public is of mosaic. A public telephone-room is provided to the right of the public office, and the inquiry office can be reached from the public office, or by a separate door. The sorting office is immediately behind the public office, and measures 114 ft. by 100 ft. There are three entrances to the Dee-street block, the central one being to the telegram delivery office. South of the telegram delivery office is the bicycle-room. In the Dee-street block also there are the postmen's retiring-room and lavatory accommodation. The basement flat is principally utilised for store-rooms, battery-room furnace-room, etc. In the furnace-room are two boilers, used in connexion with the heating arrangements. The building will be heated by a low-pressure hot-water system. The upper floors are reached by a circular stair made of Arbroath stone in the south-east tower. All the floors are of concrete, hung by steel beams, the major part being covered with wood blocks. In the Crown-street block, on the first floor, there are two entrances, one to the surveyor's department, and the other to the postmaster's department. The surveyor's department consists of a suite of six rooms, and the postmaster and his staff take up three rooms. In this part of the building there are also the telegraph engineer's department, the medical officer's suite of rooms, women's waiting-room, men's waiting-room, returned letter branch, a room proposed to be utilised as a boys' institute, reading-room, telegraphists' retiring-room, and a spare room. In the Dee-street block, on the first floor, there are the sorters' retiring-room, the dining-room, and pantries and kitchen. On the second floor in the Crown-street block are the women's retiring-room, private telephone-room for official use, mechanics' work-room, and apparatus-room, telephone battery-room, telegraph school, and lavatory accommodation. In the connecting block between the Crown-street and Dee-street blocks is the telegraph instrument-room, measuring 114 ft. by 40 ft. In the Dee-street block on this floor are a suite of rooms which will be occupied by the Great Northern Telegraph Company's staff. The whole of the building will be lighted by electricity. It is estimated that the total cost, apart from the site, will amount to 52,000*l.* The contract for the whole of the work was put into the hands of Messrs. P. Bisset & Sons, Aberdeen. Mr. J. Reid has acted as clerk of works.

CENTRAL FIRE STATION, DUBLIN.—The new Dublin Central Fire Station, at Great Brunswick and Tara streets, is approaching completion, and will shortly be ready for occupation. Mr. Spencer, the City Architect, prepared the plans for the work.

BLEACH WORKS, ABERDEEN.—New bleach works are being erected near the Bridge of Dee for Messrs. Richards, Ltd. The buildings take in ground measuring about 308 ft. by 246 ft. The walls are of granite and the roofs will be slated. The contractors are:—Mason work, Mr. Leslie Smith; carpenter work, Mr. George Jamieson; slater work, Messrs. Merson & Stewart; ironwork, Mr. George Thomson; plumber work, Messrs. Thom & Strachan; plaster work, Messrs. J. Scott & Son; painting, Messrs. Gordon & Watt. The architects are Messrs. Wilson & Walker, and Mr. Thomas L. Kay is clerk of works.

ENGINE-HOUSE, ETC., ALTHAM BRIDGE.—The Accrington District Gas and Water Board have accepted the tender of Messrs. George Cunliffe & Sons, of Accrington, amounting to 5,449*l.* 7s. 6d., for the building of engine and boiler house at their pumping-station at Altham Bridge. The buildings will be of local red plastic bricks, with York stone dressings, and the architects are Messrs. Haywood & Harrison, of Accrington.

PROPOSED MEMORIAL HALL AND SUNDAY-SCHOOL, NORWICH.—Plans have been prepared by Mr. H. Chatfeild Clarke for the Matineau Memorial Hall and Sunday-school, which it is proposed to erect at Norwich. The contract for the work amounts to, 4,183*l.*

BLACKFRIARS BRIDGE.—Twelve firms have been asked to send in tenders for the widening of the bridge from the existing total width of 75 ft. so as to provide a roadway 73 ft. from kerb to kerb, and two footpaths 16 ft. apiece, giving room for a double tramway line, with a wider road and wider footpaths than at present. That will be done by reconstructing the up-stream side of the structure, the existing materials being utilised, and laying extended foundations for the abutments and piers. A curve will replace the pedestal at the north-west corner, and a subway, 10 ft. by 8 ft., is to be made from the terrace on Victoria-embankment to the steps in front of Bridge House-building. The Thames Conservancy have agreed to a proposed enlargement of the steps and the construction of a causeway on the Surrey side conditionally upon the extension of the causeway to low-water mark and the retention of the old stairs until the new ones are ready for use. The specified period for the completion of the works is thirty-six months; the contractors will be penalised to the extent of 20*l.* for each additional day, and will be allowed a bonus of 20*l.* for each day within the stipulated limit of time. A widening instead of an entire rebuilding of the bridge has been adopted by the Corporation upon the advice and recommendations of Sir Benjamin Baker.

THEATRE, CARDIFF.—The New Theatre has just been opened at Cardiff, in Park-place. Messrs. Runtz & Ford, London, were the architects. The internal decorations, which have been carried out by Mr. E. Bell, London, are in the "Empire" style. The erection of the theatre has been carried out by Messrs. James Allan & Sons, the furnishing by Messrs. James Howell & Co., and the saloon fittings by Mr. W. I. Vaughan, plumber and bar-fitter.

BUILDING TRADE, EASTBOURNE.—The following plans have been approved by the Buildings Committee of the Eastbourne Town Council:—C. Miller & Son (P. D. Stonham, architect; C.

Miller & Son, builders), six houses, Green-street.—S. A. Stratford (P. D. Stonham, architect), laundry and stable, Bourne-street.—Grand Hotel Company, Ltd. (Hunt & Steward, architects; Holland & Hannon, builders), addition to Grand Hotel, Compton-street.—John White (Mitchell & Ford, architects; John White, builder), five houses, Victoria-drive.—Miller & Selmes (Mitchell & Ford, architects; Miller & Selmes, builders), detached house, Ashburnham-gardens.—Rev. H. W. Wakefield (P. D. Stonham, architect), alterations at Temple-grove, Compton Place-road.—J. Cullingford, petrol store, 92, Tideswell-road.—The New Eastbourne Hippodrome Company, Ltd. (Peerless Dennis & Co., builders), internal alterations at the Hippodrome, Seaside-road.—The Trustees of Ocklynge Gospel Mission (F. G. Collins, builder), mission-room, Victoria-drive.—Stephen Bindon (Peerless Dennis & Co., builders), alterations and additions to premises, Ashford-road.—James Vine, three pairs houses, Prentice-road.—Rev. A. Allen (M. Hookham, builder), detached house, Seaside.—E. J. Miller (Mitchell & Ford, architects), warehouse building, Langney-road.—W. H. Cornwell (Mitchell & Ford, architects; W. H. Cornwell, builder), ten houses, Prentice-road.

POST-OFFICE EXTENSION, LONDON.—On the former site of Christ's Hospital new post office buildings are to be erected by the Treasury, to be called King Edward's Building, covering an area of 2½ acres, without a single brick or block of stone. From top to bottom the construction will be of Hennebique ferro-concrete. The whole site is to be excavated to a depth of 30 ft. and about 110,000 cubic yds. of dirt taken away. The new building will have 11½ acres of floor surface. The designs have been prepared by Sir Henry Tanner, the architect to the Office of Works.—*Standard*.

INSTITUTE PREMISES, SUTTON-IN-ASHFIELD.—The temperance café, institute, and public hall which have been erected in this town were recently opened by the Duke of Portland. Mr. Percy B. Houfton, architect, prepared the plans for the work, the cost of which has been 3,750*l*.

THE UNION JACK CLUB.—The erection of the Union Jack Club for soldiers and sailors in Waterloo-road is now nearing completion. The building, which is being constructed by Messrs. W. Johnson & Co., of Wandsworth, from the designs of Mr. H. B. Measures, director of barrack construction, is of red brick, with terra-cotta dressings. On the ground floor is the great hall, 100 ft. by 30 ft., with a height from floor to ceiling of 17¼ ft. Beyond the hall is a library, the main dining-room and overflow dining-room. In the basement there is a billiard-room, where six tables will be placed. The bedrooms occupy four floors. At present they are 206 in number, but with the extension of the premises there will be 350. Most of them are rather less than 9½ ft. by 8½ ft. in extent. The cost of building and fitting up the club will be 85,000*l*.

Stained Glass & Decoration.

REREDOS, UPTON CHURCH, TORQUAY.—The new reredos in the parish church of St. Mary Magdalen, Upton, Torquay, was unveiled on the 2nd inst. The original portion of the reredos is formed in red and yellow Devonshire marbles, with three large panels filled with sculptured alabaster. The central panel, which is the largest, contains a representation of the Crucifixion. The side panels represent incidents in the life of St. Mary Magdalen, to whom the church is dedicated. The superstructure just completed consists entirely of Caen stone. The principal and central feature is a large figure of our Lord. On either side are smaller figures in tiers placed in richly-canopied niches. Above these figures the reredos rises in a series of pinnacles grouped around central spires. To the top of the central finial the height is 35 ft. from the level of the altar step, and about 40 ft. from the level of the nave. The reredos stands across the chord of an octagonal apse, which allows access on all sides, and is connected with the side walls of the chancel by richly-perforated screens with doorways in the centre. The architect was Mr. Temple Moore, of Hampstead, the sculptors being Messrs. Blackler, of St. Marychurch.

Sanitary and Engineering News.

LOWESTOFT HARBOUR.—New works have just been completed for the construction of the Hamilton Dock, at the instance of the Great Eastern Railway Company, proprietors of the harbour. The dock, having a water area of 10 acres, with quays 1,627 ft. long, and a large covered market, is to the north of the Waveney Dock, which was made twenty-two years since, the total water area being thus increased to 22 acres, and the total quay length to 3,260 ft. An electrical pump supplies sea-water for cleansing the markets and quays, which are lighted with incandescent gas, and an auction mart for fish sales has been built to serve the old and new docks. The water area of the outer and inner harbours did not exceed previously 36 acres for the fishing and general shipping trades combined.

A CANAL FROM THE BALTIC TO THE BLACK SEA.—The Russian Government have deputed Mr. Jackson, an American engineer, to make initial surveys for a canal to join the two seas, at a cost of 200,000 roubles. The arrangement provides that, so far as possible, Mr. Jackson shall employ Russian engineers for his staff, and that, failing the grant of a concession for the undertaking, he shall be recouped for the outlay upon the survey, but not in excess of the sum of 200,000 roubles.

VICTORIA-EMBANKMENT TRAMWAYS.—The tramways are being constructed by Messrs. Dick, Kerr, & Co., Ltd., who have contracted for double tracks of about 2,640 yds. of route along the Embankment and 264 yds. of route across Westminster Bridge. The effective width of the lines ranges from 18 to 19 ft., affording an average of 47 ft. along the Embankment for the general vehicular traffic; the tracks are to be paved with setts of Aberdeen granite, extending 18 in. along the outer rails. The girder rails, 45 ft. in length, weigh 105 lbs. to the yard; the conduit is enclosed in yokes spaced at distances of 45 in., and each alternate yoke has arms on which the rails are carried, at a distance of less than 3 ft. from the kerb to the nearest rail. To clear the roof of the railway tunnel which is close to the surface at Whitehall and near Waterloo Bridge (see the plans in the *Builder* of January 6 last) a special form of conduit has been adopted. The route from Islington *viâ* Kingsway will be extended through a subway to join the new route at Waterloo Bridge.

ROYAL SANITARY INSTITUTE.—At an examination in hygiene in its bearing on school life, held in Manchester on November 30 and December 1, 1906, four candidates presented themselves for the whole examination. Miss M. Richardson (Southport) was awarded a certificate. At an examination in sanitary science as applied to buildings and public works, held in Manchester on November 30 and December 1, 1906, three candidates presented themselves, and Mr. Trimbak J. Pitre was awarded a certificate.

Appointment.

EDINBURGH.—The Edinburgh Town Council have, on the recommendation of the Lord Provost's Committee, appointed Mr. J. M. Dick Peddie as architect for the new Municipal Art School.

Foreign.

FRANCE.—The jury of architecture at the École des Beaux-Arts for the competition of the first class in architecture, have awarded medals to MM. Pépin, Ford, Wynkoop, and Madeline.——M. Redon, architect to the Louvre, has been entrusted with the work of preparing for the installation of the Minister of the Colonies in the large house in Rue Oudinot, formerly occupied by the "Frères des Ecoles Chétiennes." This alteration will permit of a further arrangement of the contents of the Louvre in the Pavillon de Flore, at present occupied by the Colonial Department.——A monument to Gérôme is to be placed in the Jardin de l'Infante, at the Louvre, not far from the monument to Meissonier. The monument, the work of the painter and sculptor M. Aimé Morot (Gérôme's son-in-law), represents the artist standing at work on a sculptured group of "The Retiarius and Mirmillon," which figured in the Salon of 1878, where it attracted much attention.——M. Fijalkowski, architect, of Sens, has been elected honorary President of the "Société des Architectes de l'Yonne" for 1906-7, and M. Tantot acting President.——The Association Provinciale des Architectes Français has opened a competition, of which the subject is "A hotel near a town in the hills."——A new archæological museum has been organised at Bordeaux, in the old building called "Porte du Palais" or "Porte Royale," built in 1495, and which once served as a residence for the Dukes of Aquitaine and "Sénéchaux d'Angleterre."——M. Rachon, curator of the Museum of Toulouse, has been appointed Director of the Art School in the same city.——MM. Vidal and Reverdy, architects, have been commissioned to carry out at Lézignan (Hérault) a hospital and asylum at an estimated cost of 256,000 francs.——M. Julien Gadet, member of the Institute, has been elected President of the Société Centrale des Architectes Français.——M. Moutier, architect, has been commissioned to carry out new abattoirs at Bayeux, at a cost of 100,000 francs.——The Chamber of Deputies has voted for the purchase of the railway system of the Company de l'Ouest, which will therefore become a State railway.——The death is announced, at the age of 80, of M. Gustave Lecomte, architect. He was a member of the Société Centrale, and an expert adviser to the Tribunal Civil de la Seine.

GERMANY.—The new station at Wiesbaden was opened on the 15th ult. The three existing railway stations could not meet public requirements, as since 1873 the passenger traffic has increased 75 per cent. and the goods traffic 130 per cent., while the small country town has expanded into an international watering place. The station buildings are the design of MM. Klingholz & Rüdell, and cost 2,900,000 marks.——Barely three years ago the suggestion was made that Munich should build a museum in which to collect masterpieces of technique and science. Such zeal has been displayed that the necessary funds have been collected and the suggestion carried out, and Munich will soon boast a National Museum equal in interest to that of Nuremberg, while far superior to it in architectural merit. The building, designed by Herr Gabriel v. Seidl, is situated on an island in the Isar, which at present is connected by two bridges with the town. The plans include a double bridge which will connect the island with both embankments, the traffic between them passing through the great court of the Museum. Thus the building will at once be incorporated in the landscape, and in the life of the town. The most noteworthy feature of the design is the harmonious way it fits in with its surroundings, and the expressive manner in which each of its parts reveals the purpose to which it is assigned. The German Emperor laid the foundation-stone on the 13th ult., dedicating the building "To the memory of past scientists, to the recognition of those living, to the encouragement of those to come."

ITALY.—The new Victor Emanuel Bridge in Rome, which forms the continuation of the Corso Vittorio Emanuele, is built just below the triumphal bridge of St. Angelo. It is built in three spans, the central one being 51.2 mètres, while the two lateral ones are 17.2 mètres wide. The key-stone of the centre arch is about 11 mètres and those of the side arches 9.6 mètres above the water level. In order to partially mask the segmental constructional arches the elevations of the bridge bear elliptical decorative arches, which spring at a considerable height above mean water level, and consequently will form a pleasing outline at high water. The greatest care was taken to insure a large enough co-efficient of safety, the masonry being calculated for as granite, though tufa was used, the spandrels taken as solid throughout, though they are lightened by internal chambers, and the roadway considered as laden with traffic throughout its length. In order to ease the foundations the piers, above the springing of the arch, are hollow for a length of 18 mètres. It was not considered necessary to carry down the foundations to solid ground, which is difficult to find in that neighbourhood, and the size of the water-way makes it unlikely that undermining will take place. For the sake of adding apparent lightness to the design the parapet carried by the large centre arch is an open balustrade, while a solid wall forms the parapet of the smaller side arches. At either approach to the bridge stand two sculptured groups of trophies, composed of emblems, arms, and standards, symbolical of the four historical periods of Rome—regal, republican, imperial, and Italian. The statues standing on the central piers represent the four important rivers of the geographical sub-divisions of Italy—the Po, the Arno, the Tiber, and the Volturno. Apart from the sculpture, the architectural lines of the bridge are simple and quiet and give an impression of mass and strength. The cost amounted to 3,000,000 lire.

AUSTRALIAN BUILDERS' ASSOCIATION.—At the Inter-State Convention of the Federated Master Builders' Associations of Australia, recently held at Melbourne, a motion "That the memorandum of agreement prepared by the New South Wales Association for a system of apprenticeship be adopted by the Master Builders' Associations" was carried. Under the agreement referred to the masters undertook to instruct, or to have instruction imparted, to apprentices in a complete manner in the space of five years in the trade of carpentry, joinery, plumbing, or such other trades as might be desired. The first four months were to be regarded as a probationary stage, during which either party might cancel the contract. Provision was made for the payment of a bonus or premium by the parent or guardian, and the master on his part agreed to pay such wages as might be fixed. During the first two years the apprentices were to attend the trade classes at the available Government technical college or private school two nights a week, the master paying the fees. The apprentice was to give faithful service to his master, and not join any trade society without the master's authority. Disputes were to be submitted to a joint board of employers and employees' representatives.

LAGOS (SOUTHERN NIGERIA).—According to the Government Blue-book for 1905, just received at the Colonial Office, the year was notable for

the completion of several important buildings and works, and the following may be mentioned in particular (figures in brackets representing total costs):—New Courts of Justice, built in Tinubu-square, on the site of the old Court-house, which had served its purpose since 1877, but which was quite inadequate for current requirements (11,948*l.*); new quarters for officers and new offices and stores for the West African Frontier Force (4,782*l.*); new ice factory (4,093*l.*); quarters for the Director of Public Works (2,212*l.*); quarters for the principal medical officer (1,775*l.*) four new market sheds (1,838*l.*); new quarters for Public Works Department, European staff (1,268*l.*); extensions, electric light station (1,296*l.*). Additions to the printing-office (costing 378*l.*) and to the lands office (282*l.*) were made during the year, and a considerable amount of minor work was done both at headquarters and at out-stations. The work of reclamation of swamps, etc., was actively continued in various parts of Lagos Island, and over 50,000 cubic yds. of soil were used in filling in the areas reclaimed. The appearance of the northern and southern points of the island has, in consequence of these operations, undergone a complete change as compared with, say, four years ago, and the prospects of good health in these parts of the town have been greatly enhanced. A portion of the reclaimed area to the north has already been sold on terms which recoup the Government for its outlay.

Miscellaneous.

THE ARCHITECTURAL ASSOCIATION: A CORRECTION.—Mr. A. Saxon Snell writes:—"Will you kindly note a small correction in your report of the few remarks I made in supporting a vote of thanks to Mr. Woodward. I said 'Democracy had not yet learned the art of government, *i.e.*, government without fuss.' The words attributed to me in place of the above are strong and rather offensive."

"SURVEYOR OF THE FABRIC," WESTMINSTER ABBEY.—Mr. W. R. Lethaby, F.S.A., has been appointed by the Dean and Chapter of Westminster to the office of "Surveyor of the Fabric" of Westminster Abbey, vacant by the death of Mr. J. T. Micklethwaite. Mr. Arthur G. Wallace has been appointed Assistant Surveyor. He was for many years with the late Mr. Micklethwaite.

MEMORIAL TO THE LATE SIR BORRADAILE SAVORY.—The committee formed to erect a memorial of the late rector of St. Bartholomew-the-Great, have, in view of the late rector's aversion to mural tablets being placed on the ancient walls of the building, and his opinion that memorials should consist of something to beautify the church, decided to protect the sanctuary of the church by a low screen, in a portion of which is to be incorporated the personal memorial in bronze; and, if the funds are sufficient, to replace the present temporary altar rails with two short rail panels in bronze. Sir Aston Webb's plans were adopted. The total cost is estimated at 300*l.* In order to test the effect of the proposal, a model is to be constructed in one of the bays of the apse, which the committee will be invited to inspect.

OXFORD UNIVERSITY.—At a sitting of Convocation on November 27 a sum of 700*l.* was voted for an installation in the Bodleian Library of the "expansion pneumatic automatic fire-alarm," and a sum of 250*l.* for three successive years to defray the cost of iron book-cases for the storage of library books in the basement of the examination schools.

TRADE UNIONS.—In Part A. of the Reports of the Chief Registrar of Friendly Societies for the year ending December 31, 1905, just issued, a list is given of the leading trade unions—that is, unions that have more than 20,000*l.* funds or income, or more than 20,000 members. The following are included in the list:—Operative Bricklayers, funds, 116,137*l.*; income, 60,350*l.*; members, 35,488. Amalgamated Carpenters and Joiners, funds, 116,526*l.*; income, 180,450*l.*; members, 70,763. National Amalgamated House and Ship Painters, funds, 44,410*l.*; income, 39,098; members, 16,056. United Operative Plumbers, funds, 41,170*l.*; income, 26,236*l.*; members, 11,479. National Operative Plasterers, funds, 33,033*l.*; income, 14,172*l.*; members, 8,732. Friendly Operative Stone Masons, funds, 25,854*l.*; income, 23,616*l.*; members, 16,834. Amalgamated Brass Workers, funds, 20,245*l.*; income, 14,120*l.*; members, 6,716.

MEMORIAL TO THE LATE VIRIAMU JONES, CARDIFF.—On the 1st inst. the Viriamu Jones statue, which has been lodged temporarily in the entrance chamber of the City-hall until the new college buildings in Cathays-park are ready to receive it, was unveiled. The statue is of marble, and was executed by Mr. Goscombe John.

THE SCOTTISH NATIONAL EXHIBITION IN EDINBURGH.—A meeting of the Executive Council of the Scottish National Exhibition, which it is proposed to hold in Edinburgh in 1908, was held on the 28th ult. A preliminary Building and Construction Committee was appointed, with instructions to prepare the necessary conditions to be observed by architects in submitting competitive plans for the exhibition.

INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND GRAVERS.—At the last election the following artists were elected as Associates of the Society:—Mr. O. de Boznanska, Miss Cecilia Beaux, Messrs. Simon Bussy, Walter Crane, P. Dupont, A. Jamieson, A. E. John, Elizabeth Shippen Green, G. W. Lambert, J. Kerr Lawson, Sydney Lee, D. Mc.Gill, A. Maillol, Harrington Mann, J. Oppenheimer, W. Orpen, Charles Ricketts, Allen W. Seaby, H. le Sidaner, Ch. Storm van's Gravesande, Havard Thomas, A. G. Walker, and H. Wolf. Monsieur A. Bartholomé was elected an honorary member.

PROPOSED MODEL-COTTAGE EXHIBITIONS.—It is proposed to hold exhibitions of model cottages, next year, at Newcastle-on-Tyne, for the north of England, and at Sheffield for Yorkshire and the North Midlands, under the auspices of the National Housing Reform Council. In both cases the exhibitions will be held on municipal land, and the average number of houses will not exceed twelve per acre. It is hoped that the exhibitions will provide civic object-lessons in regard to the value of proper planning of new housing areas. Surveyors and architects will be asked to send in competitive designs for the planning of the site of the exhibition. This is a new departure in the arrangement of model-cottage exhibitions. Great care has been taken to ensure that the maxiumm prices fixed for cottages competing shall (*a*) permit a proper combination of cheapness and goodness of construction, and (*b*) cover architect's fees, and builder's profits, as well as cost of construction. As the cost of building is greater in the Newcastle district, the maximum prices there fixed are higher than in the case of Sheffield. Each cottage will be provided with a bath. Both committees recognise that no effort must be spared to avoid mis-statements of cost, and have decided to make a condition of entry an agreement that each competitor shall, if called upon to do so, (*a*) sell the cottage to the local authority on whose land the exhibition is being held, at the price stated in the catalogue; and (*b*) if called upon to do so by the local authority, within three months, to build not more than twelve cottages on the adjoining municipal estate at a similar price.

THAMES-SIDE PICTURES BY SAMUEL SCOTT.—On December 1 were sold, at Christie's rooms, some interesting pictures by Scott, depicting, from the river, Whitehall, on a canvas measuring 29 in. by 47 in., and in a set of four, each about 23 in. by 41 in.—Westminster, Lambeth Palace, Chelsea, and London as seen by one looking north-eastwards towards the Strand. The five paintings were purchased for an aggregate amount of 438 guineas, the last-named realising 100 guineas, the Whitehall view 68 guineas, and the three others 90 guineas apiece.

THE NATIONAL COLLECTIONS.—The late Mr. Alfred Beit has bequeathed to the National Gallery Sir Joshua Reynolds's portrait group of "Lady Cockburn and her Children." Mrs. Furse has lent to the Gallery of British Art at Millbank the large version of the equestrian portrait of Lord Roberts and his staff reviewing British troops during the Afghan campaign, painted, but not quite finished, by her husband the late Mr. C. W. Furse, A.R.A.; and the National Art Collections Fund have given to the nation Mr. W. Strang's pencilled "Portrait of Henry Newbolt" (at Millbank), and M. Eugene Boudin's "Harbour of Trouville" (at Trafalgar-square).

DUFF HOUSE, N.B.—It is announced that the Duke of Fife has presented Duff House and its grounds to the burgh of Banff. The principal portion of the house, which contains some seventy rooms in all, was built by, it is believed, William Adam, father of the four brothers Adam. It is ascribed to him by Woolfe and Gandon in vol. V., with three plates, of the *Vitruvius Britanicus*. In the *Vitruvius Scoticus*, published in parts in 1720-40, and in a collected form in 1810, it is also attributed to William Adam, an ascription which is corroborated by the style and manner of execution of the design, as well as by the signature upon the illustration, which is taken to be that of William Adam.

ST. CLEMENT DANES CHARITY SCHOOLS.—The Board of Education have framed a scheme whereby the governors of the foundation will effect with the London County Council an exchange of the school buildings and the site of about 4,500 sq. ft. in Stanhope-street, Drury-lane, for a site of some 11,200 sq. ft., having a frontage of 128 ft. to Drury-lane. An amount of 12,303*l.* will also be paid to the governors, to include sums of 11,459*l.* by way of equality of exchange to be applied to the erection of new schools, and 573*l.* in respect of architect's fees. The parochial charity schools, established in 1700 in "the upper churchyard" on the south-east of the Hall of Clement's Inn, were erected in Stanhope-street by Messrs. Scrivener and Co., twenty-five years ago after Mr. C. W. Reeve's plans and designs, having a façade of red and yellow brick with red brick pilasters and mouldings, for 183 infants and 147 girls on the ground floor, and 163 boys on the floor above.

HATTON GARDEN.—Consequently upon their prospective amalgamation with the Royal National Orthopædic Hospital, the trustees of the City Orthopædic Hospital have resolved to dispose of their present hospital building in Hatton-garden. The freehold property consists of the two houses, Nos. 26-7, at the corner of Charles-street, having a frontage of 43 ft. to Hatton-garden and covering an area of some 4,600 ft. superficial. The premises form one of the fine old residential houses which are now rapidly disappearing from that locality; the house contains a handsome gallery staircase of oak, some contemporary firegrates and chimney-pieces, and carving after the school of Grinling Gibbons.

PRESENTATION TO A CONTRACTOR.—A public presentation was recently made at Caerphilly to Mr. Tom Taylor, contractor, of Pontypridd, in recognition of his efforts for the development of the coal resources of the locality. Mr. Taylor was responsible for the construction of the Taff Vale Railway subway at Penarth; the extensive works in connexion with the Rhymney and Aber Gas and Waterworks Company; and he is at present engaged on the Western Valleys trunk sewer, to be carried out at a cost of a quarter of a million.

GLASGOW MASTER WRIGHTS' ASSOCIATION.—The annual general meeting of this Association was held in the Building Trades' Exchange on the 3rd inst. Mr. David Dick, President, occupied the chair. The directors' annual report, which was submitted and adopted, showed that the improvement in the building trade hoped for in last year's report had not been realised, and that from a report from the Scottish Building Trades' Federation all branches of the building trade throughout Scotland had been extremely dull during the year. Reference was also made to the formation of a Conciliation Board, consisting of an equal number of employers and operatives, to adjust in future the working conditions, and to deal with any differences which might arise from time to time between employers and operatives. The report further stated that the working rules for the current year had been adjusted by the board without the need of bringing in any outside arbitrator. Two important alterations in the by-laws were referred to—viz., the definite delimitation of what is known as the "Glasgow district," and the date of signing the rules as at July 1 instead of April 15. The treasurer's financial statement was also submitted and approved of. The following office-bearers were appointed:—President, Mr. William H. Baxter; vice-president, Mr. George Anderson; directors, Messrs. Samuel Stevenson, Thomas Gray, Robert Ferguson, Edward Gibbon, and John Herbertson; secretary and treasurer, Mr. J. D. Ramsay, writer.

NEW PREMISES, HATTON GARDEN.—Referring to our recent notice of new premises, 19-21, Hatton Garden, for Messrs. Stewart, Dawson, & Co., we are asked to mention that the Scagliola columns in Irish green, two on each floor, were made by Messrs. Bellman, Ivey, & Carter, and are fixed round iron stanchions without showing joint.

BATH MASTER BUILDERS' ASSOCIATION.—A special meeting of this Association was held on the 30th ult. to consider a communication from the Secretary of the Bath Carpenters and Joiners', submitting to the master builders new regulations governing all branches of the building trade in Bath and district. They embody new working rules, the shortening of hours, and increase of wages. As regards hours the request is for a reduction of half-an-hour a day. The wages asked are—For masons, carpenters and joiners, bricklayers, plasterers, and plumbers, 8d. her hour; for labourers, 5½d. per hour; and scaffolders, 6d. per hour. The allied trades mentioned have not all received the same rate of pay, and a uniform scale is now proposed. There are also regulations as to overtime, walking-time, with provisions for railway fares, and proposals as to apprentices. A Board of Conciliation is suggested, composed of four employers and an equal number of members of the trade, with two arbitrators where necessary, who may call in an umpire. Simultaneously the Bath branch of the National Amalgamated Society of Operative House Painters and Decorators are moving to like effect. It is suggested that the new rules should come into force on June 1, 1907. The Masters' Association have referred the whole question to a sub-committee to consider and report.

ROSSENDALE AND DISTRICT MASTER BUILDERS' ASSOCIATION.—The second annual dinner of this Association took place on the 27th ult. at the Queen's Arms Hotel, Rawtenstall. Mr. W. T. Watson, of Waterfoot (President of the local Association) was the Chairman, and he was supported by Mr. G. Macfarlane, of Manchester (President of the National Association of Master Builders), Mr. W. Johnson, of Wigan (President of the Lancashire, Cheshire, and North Wales Building Trades Federation), Mr. R. Hall, of Bury (Secretary to Rossendale and District Association), and many others. Mr. Constantine

proposed "The Lancashire, Cheshire, and North Wales Building Trades Federation." Mr. Johnson, of Wigan, in reply said there was no doubt the Federation had done good work in the past for the building trades of this neighbourhood. It was still doing good work, and if they could only get all building firms associated as they were in this district the work the Association had done would be as nothing compared with what they would be able to accomplish. He understood there were forty members in that Association, and, in view of the short time the society had existed, this was very creditable. He felt thankful that they adopted the inter-trade rule which had put their Association on a good financial footing. An important matter which had been dealt with was the P.C. amounts and quantities. Some architects took these P.C. out of the builder's hands, but the Association had made arrangements with the architects that in all P.C. amounts the builder was allowed 5 per cent. Mr. J. E. Tinline, Bury, proposed "The Rossendale and District Master Builders' Association." Replying, the Chairman said that as yet only about thirty-nine members in the three Rossendale boroughs, covering an area of about ten square miles, were members of the Association. Mr. Ormerod Ashworth, Crawshawbooth, next proposed the toast, "The National Association of Master Builders." Mr. Ashworth spoke of the damage done to new buildings by the weather, which was a great hardship on builders who had contracted. It was a very difficult matter when contracting to say they would allow so much for repointing because of damage by the weather, and he thought architects ought to leave out this clause when builders could not put a price on. Mr. Macfarlane responded for the National Association. He said the building trade was a good test of the quality of the man. No trade made greater demands on a man's mental and physical strength than the building trade. Unfortunately it was owing to industrial life of the present time that masters and men should seem to be in two armed camps, while there appeared to be on the part of some people a desire to make the cleavage still more pronounced as time went on. This was a great mistake. The prosperity of one was the prosperity of the other. It ought to be the desire of employers to do the best they could for their workmen, and a good master would always get a good workman. The remaining toasts were "Our Visitors," by Mr. J. H. Hoyle, responded to by the surveyors of Bacup, Haslingden, and Rawtenstall, and Mr. R. Neill; and "The President and Officers of the Association," proposed by Mr. Joseph Stansfield, and responded to by Mr. J. Ormerod.

THE CARPENTERS' COMPANY.—The Worshipful Company of Carpenters held an examination in sanitary building construction on November 29 and December 1. The following is a list of successful candidates in order of merit:—*Silver Medals* to Messrs. George Arnall and Wm. Green; *bronze* to Messrs. H. E. Gibbs, E. E. Hunt, P. J. Luxton, John Lewis, H. E. Fairchild, Arthur Crews, and Alfred Golds. *Certificates* were awarded to Messrs. H. S. Granfield, A. E. Rees, Wm. Bell, G. B. Hardwick, J. L. Wheatley, H. N. Royston, A. E. Keen, J. C. Morrison, A. Sharpless, W. Ambrose, J. E. Moorey and G. Mould (equal), W. H. Chetham and D. Williams (equal), G. McCorquodale, E. Sudds, E. H. Wise, and J. W. Brown. The number presenting themselves this year were the same as in 1905. The candidates included men from Scotland, Sanderland, Yorkshire and Lancashire, Norfolk, Devon, Southampton, Bordon Camp (Hants), and Tunbridge Wells.

NEWCASTLE AND DISTRICT BUILDING TRADE.—The Tyne and Blyth District Association of Building Trade Employers held its annual dinner on the 11th inst., at the Royal Turk's Head Hotel, Newcastle. There was a large attendance, presided over by Councillor Stephen Easten. The Chairman was supported by the Lord Mayor (Mr. J. M. Oubridge), the Sheriff of Newcastle (Mr. Jno. Fitzgerald), Mr. R. Heslop, Mr. J. W. White (President of the Northern Counties Federation of Building Trades Employers), Councillor J. T. Armstrong (President of South Shields Association), Mr. J. Simpson (President of Blyth Association), the Mayor of South Shields (Councillor J. Martin), and others. After the loyal toast had been honoured Mr. R. Heslop gave "The National Federation of Building Trades Employers." He said the Federation, though young, was in a healthy and robust condition. Various circumstances had brought the federation into being. Pressure of the operatives and oppression of what he might call unscrupulous architects were among the causes. He did not mean all architects, of course, but they could all remember that many of the clauses in their contracts were equivalent to a sentence of death, a sentence which too many of them through competition were often obliged to accept. Now, however, through the efforts of the federation, they not only had a fair basis of contract, but were on the best of terms both with the architects and surveyors and with their operatives. He defended such a body as their federation upon the ground of the vast interests involved. The building trade with its wage-sheet of 117 millions a year was, he thought, only next in importance to the agricultural industry. The toast was responded to by Mr. A. G. White.—Mr. J. W. White gave the toast of "The Tyne and Blyth District Association of Building Trades Employers." He said the need for this association was patent to anyone who had any connexion with the building trade. It was not their purpose to keep down wages; it was the desire of the building trade to pay the highest wages possible with fair competition with other districts. Still, until the formation of this association there was a disposition in that district to take advantage of the want of organisation among the employers; and they might thank their President and others who had formed the association that the present year had been free from those disputes which had so often proved so disastrous. He was glad to say, too, that for the future they had adopted different methods of dealing with these crises. They had formed a Conciliation Board from which, he hoped, with patience they might secure the best of results.—The Chairman (Councillor Easten) responded. He said the Tyne and Blyth District Association consisted really of four separate associations, viz., those of Newcastle, South Shields, North Shields, and Byth, and their amalgamation was brought about by a generelly expressed desire for a better feeling to exist between the builders and their employees. He was pleased to think that the machinery of their federation was such that a dispute could only be entered upon after grave consideration. In fact it was almost impossible that a dispute could take place in the building trade if builders were members of their federation. As to business prospects he thought they had hope of a revival. Councillor J. T. Armstrong (President of South Shields Association), Councillor W. Simpson (President of the North Shields Association), and Mr. J. Simpson (President of Blyth Association) also responded to the toast. Mr. W. H. Hope gave "Our Municipal Authorities," and the Lord Mayor responded. Other toasts followed.

WALPOLE ST. PETER, NORFOLK.—It is proposed to raise contributions to a sum of 2,000*l.* for the restoration, upon strictly conservative principles, of the roofs of the parish church, one of the finest in the county. The existing lead will be melted and utilised, and the oaken work will be retained as far as its condition will allow. The XIVth century church has a high embattled tower, a south porch of beautiful design, and a range of clear-storey windows, thirteen along each side. As at the churches of St. Gregory and St. Peter Mancroft, in Norwich, the church presents a notable example of a raised presbytery floor, with a flight of steps to the east of the choir-stalls, giving access to a passage beneath, so that the rood-screen, now destroyed, was unusually high in order not to obstruct a view of the elevated altar. An illustration of the font-cover will be found on page 191, Vol. LXXXIII. of the *Builder*.

CAMBRIDGE UNIVERSITY.—The Antiquarian Committee direct attention in their annual report to the overcrowded condition of their galleries and to the pressing needs for a new building to contain many objects which are now stored in a hired warehouse. The Director, Baron von Hugel, has collected and promised a contribution of 1,500*l.* to a building fund, and a suitable site would be supplied by the authorities. Steps are being taken for the assignment of a parcel of ground for an enlargement of the Chemical Laboratory, and for an extension in Free School-lane of the Cavendish Laboratory. A list of subscriptions, just issued by the Vice-Chancellor, towards the building fund of the Department of Agriculture includes contributions by the Drapers' Company, 5,000*l.*; by the Duke of Devonshire, the Duke of Westminster, Lord Rothschild, Lord Strathcona, Lord Iveagh, and Sir Ernest Cassel (conditionally), 1,000*l.* each; and Lord Tredegar, 500*l.*

Capital and Labour.

GLASGOW PAINTERS.—A mass meeting of Glasgow painters was held in the Waterloo Rooms on the 5th inst., under the auspices of the local branch of the Scottish Amalgamated Society of Painters. Mr. James Quee, who presided, reported that the conference party had had a meeting with the employers, and that the working agreement for 1907 had been signed. This was the same as that of 1906, with the exception of one small alteration. A clause dealing with apprentices stated that they should be bound for six years. In the agreement for 1907 the word "bound" had been altered to "serve." Although the employers had agreed to the same conditions as last year, they stated that in the following year they would bring forward a proposal with regard to the boundary-line, and the speaker urged that all workmen outside the society should become members, so so that it might be as strong as possible to oppose the proposal.

Legal.

BUILDER'S ACTION AGAINST SURVEYOR.

THE case of Wiltshire *v.* Telfer came before the Court of Appeal, consisting of Lords Justices Vaughan-Williams, Moulton, and Buckley, on the 10th inst., on the appeal of the defendant from a judgment of a Divisional Court of King's Bench, composed of the Lord Chief Justice and Justices Wills and Darling.

Mr. Montague Lush, K.C., and Mr. Ferminger appeared for the appellant; and Mr. Duke, K.C., and Mr. Thorn-Drury for the respondent on the appeal.

Mr. Lush, in opening the case, said the defendant appealed from the order of the Divisional Court reversing the judgment of the County Court judge who tried the action and who gave judgment for the defendant. The point in the case was an extremely short one, and turned really on the construction of a couple of letters. The defendant was a surveyor and was a member of the firm of Walter Lovejoy & Telfer, and the plaintiff was a builder and contractor. The plaintiff brought the action to recover the cost of some work done at a hotel called the Rose Hotel, of which a Mrs. Wilkins was the tenant and occupier. The freeholder had served notice on his lessee to do certain repairs on the premises, and the lessee served a like notice on his sub-lessee, Mrs. Wilkins, to do them, and Mrs. Wilkins asked the defendant to get two or three tenders for the work, and the defendant accordingly sent to two or three builders a specification. He (counsel) submitted that the notice at the head of the document was quite conclusive as to whether the defendant was or was not liable to the builder for the work. At the head of the document were the following words:—"Repairs required to be done at the Rose Hotel for Mrs. Wilkins." He submitted that was a clear indication by the surveyor that he was asking for tenders for the tenant of the hotel. The surveyor enclosed the specification in a letter asking for an estimate for the work required to be done. On March 24 an estimate came in from the plaintiff addressed to the defendant's firm, in which he said he would do the work according to the specifications for 88*l.* The plaintiff's tender was accepted, and after the work was finished plaintiff wrote to the defendant's firm and asked to whom he should send the account. Defendant replied that he had better send the account to Mrs. Wilkins, and added: "I will get a cheque from Mrs. Wilkins and pay you." The end of the story was that Mrs. Wilkins was unable to pay, and then the plaintiff commenced the action against the defendant in the County Court, alleging that the defendant had made himself liable for the account. The County Court judge held that the defendant had not contracted to personally bind himself to pay the account, and entered judgment for him with costs, but the Divisional Court reversed that decision and entered judgment for the plaintiff. The learned counsel submitted that the judgment of the learned County Court judge was unassailable and should be restored. He contended it was clear that the builder knew that the defendant was only the agent for the principal.

After hearing Mr. Duke on behalf of the respondent in support of the judgment of the Divisional Court,

Lord Justice Vaughan-Williams, in giving judgment, said he thought the decision the County Court judge had come to was the right one. In his opinion the correspondence and the contract clearly excluded the liability of the defendant as a principal because it showed as plain as could be that the repairs were to be done for Mrs. Wilkins.

Lords Justices Moulton and Buckley concurred, and the appeal was accordingly allowed with costs both in that Court and in the Court below.

ACTION BY BUILDERS FOR BONUS.

THE hearing was concluded on the 11th inst., in the Court of Appeal, before the Master of the Rolls and Lords Justices Cozens-Hardy and Farwell, of the case of Bywaters & Son *v.* Curnick & Co., on the appeal of the defendants from a judgment of Mr. Justice Bigham in the King's Bench Division.

Mr. Morton Smith (with him Mr. Montagu Lush, K.C.), in opening the case for the appellants, said the learned judge had given judgment for the plaintiffs for 360*l.*, the amount alleged to be due in reference to certain building operations executed by the plaintiffs, a firm of builders and contractors, for the defendants in Glasshouse-street, Regent-street. The defendants owned premises which adjoined the County Fire Office, and in January, 1903, the plaintiffs tendered for the pulling down for the defendants of an existing building, and amongst other alterations for the erection of a party wall between the defendants' premises and the premises of the County Fire Office, and the plaintiffs' tender for 12,395*l.* was accepted. The question in the case was whether in the circumstances the plaintiffs were entitled to a bonus offered or contracted to be paid by the

defendants if they completed the works on the ground floor and basement within a certain specified time, so as to enable a restaurant to continue its business. The defendants' case was that the plaintiffs did not complete the work within the time agreed upon. The plaintiffs, on the other hand, alleged that the reason they did not complete the work within the time agreed upon was because the defendants had neglected to have a party-wall award made before the date when they were ready to commence the work, and that as the defendants were not in the position to give them clear possession of the site at the time they should have started work they were released altogether from building within the specified time, and that they were thus entitled to the 360*l*. The plaintiffs alleged that the time for earning the bonus ran against them from a date in March after the party-wall award was made, and that the commencement of their work had been delayed owing to their having to erect certain screens in order to screen off certain of the County Fire Office rooms when the work on the party wall was commenced. Mr. Justice Bigham held that as the party-wall award was not made by February 12, the date the plaintiffs were ready to begin the work, they were entitled to the 360*l*. No formal contract was drawn up, the plaintiffs' tender being accepted verbally, and to it were attached the drawings, plans, specifications, bills of quantities, and a letter dated February 4, 1903. The point was taken on the other side that the two sums of 12,395*l*. and the 360*l*. formed the contract price, and that if anything had to be deducted from it it became a penalty, and was not a bonus. It appeared that on December 8 the defendants served on the County Fire Office a party-wall notice under the London Building Act. But for the difficulty which arose that would have entitled the defendants to have commenced the work by February 8 following. The County Fire Office, however, did not assent to the notice, and therefore a "difference" having arisen according to the Act, an award had to be made before anything further could be done. It was the duty of the plaintiffs under the contract to give all necessary notices to the District Surveyor and the local authorities. The plaintiffs did not obtain the consent of the District Surveyor to the building going on until February 20. In the meantime the County Fire Office objected to the work on the party wall being done until the party-wall award was made, which was not until March 3. On that date orders were given to commence work on the party wall. Plaintiffs, however, had then to erect the screens before the party wall was pulled down. The screens were not finished before March 16, and the plaintiffs' case was that as the screens were extras the time for earning the bonus did not begin to run against them until that date, and that as they completed the work within nine weeks from that date they were entitled to the 360*l*. The defendants' case was that the screens were in the contract, and were not extras, and that, therefore, the time commenced to run against the plaintiffs from March3. The learned counsel contended that in the circumstances the learned judge was wrong in holding that the plaintiffs were entitled to the 360*l*. Mr. Justice Bigham had held that the screens were part of the work the plaintiffs had to do in the nine weeks to earn the bonus.

Mr. Lush followed on the same side, and said it was common ground that the time the plaintiffs gave possession of the basement and ground floor was outside the nine weeks, counting from March 4.

Mr. C. A. Russell and Mr. A. A. Hudson having supported the judgment of Mr. Justice Bigham in the Court below on behalf of the plaintiffs,

The Master of the Rolls in giving judgment, after stating the facts, said the plaintiffs' claim was really in effect for damages by reason of being prevented from earning the money in question by the defendants. Mr. Justice Bigham had come to the conclusion that the plaintiffs were right in saying that the reason they had not completed the work in the time was because they were prevented from doing it by the defendants. He saw no reason to interfere with the decision of the learned judge, and he thought that the appeal should be dismissed with costs.

The Lords Justices concurred.

ACTION BY BUILDING OWNER AGAINST VENDORS.

MR. JUSTICE SWINFEN-EADY, in the Chancery Division last week, decided the case of Holmes *v.* Wenham and Others, an action brought by the plaintiff, one of the purchasers at a sale by auction in July, 1903, of the Channel View Building Estate, at Pevensey Bay, Sussex, to recover damages for alleged breach by the vendors of an agreement to complete certain roads.

It appeared that the estate consisted of seven or eight acres of beach, and the building plan, which had been approved by the local authority, comprised certain roads which were described on the plan as to be macadamised on chalk foundation. These roads were called the parade, and three others connecting the parade with the road from Eastbourne to Bexhill. The four lots which the plaintiff purchased were situated at the corner of the parade, and on one of the lots he was authorised to build a hotel. The particulars of sale stated that no charge would be made to purchasers for the formation of new roads, and that the roads were being constructed under a contract with a well-known contractor. The purchaser, being dissatisfied with the condition in which the roads remained after the sale, declined to complete his purchase unless he got the vendors' undertaking, which was given on August 24, 1903, to the effect that if the new roads were not then already completed they should be forthwith finished at the vendors' expense as provided by the particulars. The contract provided for the formation of the roads, in accordance with plans and specifications, at a cost of 575*l*., payable in certain instalments on certificates from the architects of the vendors, and the specifications required the roads to be filled in with chalk, brick rubbish, and other hard material to be approved by the architects, The contractor had also to pull down a Martello tower, and could use the materials for the roads if considered suitable by the architects. The plaintiff alleged that the roads had not been made so as to be fit to cart building materials over them, and that as he had thus been unable to commence building on his plots they were of no value to him. The defendants denied that they were bound by the contract of sale to complete the roads at their own cost, and they alleged that they had carried out their undertaking. They contended that as the road contract had been carried out with the approval of their architects they had satisfied the undertaking, and that they could not be compelled to put the roads in a condition fit to be taken over, as was suggested by the sums estimated by the plaintiff. They attributed the delay of the plaintiff to begin building to the fact that there had been delay by the local authority in deciding on a drainage scheme.

After hearing the evidence and the addresses of counsel, his lordship, in giving judgment, after stating the facts, said the plaintiff's case was that the roads delineated on the plan annexed to the particulars were not formed on August 24, 1903, the date of the undertaking, nor had they been to that day. The defendants' case was that they were finished on July 31 as provided by the contract. In his opinion they were to be made fit for the immediate purpose for which they were required. It was suggested in the pleadings that they were to be made up in such a way as to be fit to hand over to a local authority, but that he did not consider to be justified, nor was it attempted so to be. They were only to be "forthwith finished." The question was, were they so finished? In his opinion they never were. It was common ground that the bricks from the tower were excellent as solid material: but where the witnesses parted company was with regard to the binding material, and it was quite clear that none such was used beyond the mortar dust and fine particles from the tower, except so far as the surface of the beach could be so considered. These in time percolated through the bricks, and leaving them on the surface made the condition of the roads rough and unserviceable. The plaintiff's witnesses said that the roads had never been rolled, and that they required at least 9 in. of chalk to bind them together before they could be in anything like working order. In his opinion they might have been left exceedingly rough and the loose rubbish used was not a sufficiently binding material. He estimated the damages the plaintiff had suffered at one-fourth the cost of the lots, and gave judgment for him for 75*l*. and costs.

Order accordingly.

Mr. Eve, K.C., and Mr. Micklethwait appeared for the plaintiff; and Mr. Dickens, K.C., and Mr. E. P. Hewitt for the defendants.

Patents of the Week.

APPLICATIONS PUBLISHED.*

18,465 of 1905.—R. C. HARRISON (O. W. ALSTON): *Stone Sawing and Similar Machines.*

THIS relates to a stone sawing and similar machine, and consists of a crank shaft, a pitman rod and pitman plate, a rock shaft, a prime sector rigidly connected therewith, means for connecting the pitman plate with the sector to oscillate the latter and rock the shaft, a vertically movable transmitting sector oscillated by the rock shaft, and means for connecting said sector with the saw carrier. The invention also consists of recoil mechanism comprising recoil springs to which are connected suitable rods pivoted to the track or face plate of the saw sash, and protruding through an aperture in the face of the supporting sectors.

24,016 of 1905.—W. PEHL: *Taps, Valves, and Cocks.*

This relates to a fluid pressure tap, valve, or cock in which a hollow plug is adapted to be partly rotated by a fold-down handle attached to the plug and adapted to be moved in a segmental slot formed in the body of the tap so as to cause an orifice in said plug to move into or out of register with a discharge passage.

26,145 of 1905.—A. B. STOKES: *Domestic Stoves or Grates.*

This relates to a domestic stove or grate in which the space above the grate has no direct communication with the chimney, so that air supplied to the stove above the incandescent fuel will cause the products of combustion to be siphoned through said fuel, and thence through the closed ashpit to the chimney or shaft.

26,567 of 1905.—S. TAYLOR: *Machinery for the Manufacture of Stepped Metallic Sheets and Caps or Strips for Roofing and other purposes.*

This relates to machinery for the manufacture of stepped metallic sheets and sheet metal caps or strips for roofing and other purposes, and consists essentially of a pair of feed rollers, inclined guides in front of the rollers, and stepping tools at the rear of the rollers, mechanism and gearing for giving to the feed rollers an intermittent rotary motion, and mechanism for giving to the vertical sides of the machine by which the movable tool of the pair of stepping tools is carried a vertical reciprocating motion on the end standards.

908 of 1906.—W. H. BAILEY: *Apparatus for Ventilating and Regulating Temperature in Ships, Buildings, Mines, and the like.*

This relates to an apparatus for ventilating and regulating temperature in ships, buildings, mines, and the like, comprising a rotary frame mounted on a suitably-elevated support and containing a centrally disposed fan, two wind wheels geared to the shaft of the fan, and other wind wheels adapted to act as rudder-wheels to the frame, and also when desired as additional motive power.

1,263A of 1906.—G. G. BRODIE and A. B. COLEMAN: *Kitchen or Cooking Ranges.*

This consists in regulating the draught in the flues of kitchen or cooking ranges by making in in the main flue, preferably immediately over the hood or canopy of the range, a ventilating opening and providing an adjustable hinged flag for regulating the said opening. The invention also consists of a loop on the back of the hinged flap and a projecting rod or arm on the upper edge of the top plate of the canopy or hood, whereby on the opening of the canopy or hood the hinged flap of the ventilating opening is automatically closed.

2,284 of 1906.—F. G. BLOTT: *Window Sash and the like.*

This relates to a noiseless window sash, rendered self-acting and silent by having small bow or spiral springs recessed in the extreme side front edge of a window sash, the said springs resting and sliding up and down with the sash on the metal bead and inside lining of the window frame groove, thus stopping all side play and loose-fitting, and making said window sash noiseless.

2,805 of 1906.—G. B. JOHNSON: *Machinery for Corrugating Metal Sheets.*

This relates to a machine for corrugating sheet metal, comprising pairs of rolls each consisting of an arbor having splined upon it a number of sections normally held apart by spring pressure, and consists in the arrangement for determining a normal distance apart of said sections in a roll of slots slidably upon the arbor, and leading screws journalled in bearings carried by the arbor, successive portions of the length of each leading screw having threads of progressively varying pitch, which engage in threaded apertures in the respective stops, so that by the rotation of the screw the positions of all the stops wherewith it engages may be simultaneously adjusted.

2,808 of 1906.—J. FOSTER: *Hinged Gates, Doors, Windows, and the like.*

This relates to a support for preventing the sagging of the front ends of gates, doors, and the like, and consists of a lever mounted to oscillate on the gate or post, and turned from an inclined into a vertical position when the gate is closed, during which movement the lever, by engaging a suitable projection, tends to raise the free end of the gate and takes the weight.

4,086 of 1906.—G. F. HIRST: *A Combined Tenon and Bracket Joint for Gates, Railings, and the like.*

This relates to the preparation of metal bars for the construction of gates, railings, hurdles, and the like, and consists of a mode of forming or cutting the end of a flat bar with two parallel slits so as to leave a straight centre tongue serving as a rivet or tenon of any desired size. The two end parts thus separated from the tenon are then turned down at right angles, so as to form vertical legs or stays which serve as brackets to keep undue strain from the tenon. In the usual cross such side parts are cut off and removed, and the entire strain of the weight falls on the tenon.

PATENTS.—*Continued on page 707.*

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competition, —.; Contracts, iv. vi. viii. x.; Public Appointment, xvi.; Auction Sales, xxvi.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

Competitions.

JANUARY 5.—**Guiseley.**—SCHOOL.—Proposed dual secondary school for Guiseley District (near Leeds), for an estimated accommodation of about 200 scholars. Names and addresses not later than January 5, to Mr. M. Rennard, Secretary to the Governors, Guiseley, near Leeds.

JANUARY 12.—**Cefn.**—HALL.—The Committee of the George Edwards Memorial Hall offer a prize of 10*l.* for the best design (including plans and elevations) of the hall. The successful competitor will have the option of carrying out the work upon terms, which, together with full particulars, may be obtained from Mr. W. Ryland Jones, Secretary, High-street, Cefn, Ruabon. Designs, etc., to be in hand on or before January 12.

FEBRUARY 6.—**Galway.**—HOSPITAL.—Galway Board of Guardians invite plans and estimates of a fever hospital proposed to be erected at Galway. A premium of 25*l.* will be given; but in the event of the Guardians deciding to give the supervision of the building to the architect or engineer whose plan has been accepted, this premium will be merged in his fees. The selection will be made by an architect or engineer having no interest in the business. Particulars as to hospital accommodation, etc., required, will be furnished by Mr. Robt. F. Mullery, Clerk of Union, Galway. The plans will be received up to 11 o'clock a.m. on February 6.

Contracts.

BUILDING.

DECEMBER 17.—**Blackpool.**—ALTERATIONS TO POLICE-STATION.—Blackpool Watch Committee invite tenders for proposed alterations and extensions to police-station, South Shore. Bills of quantities, etc., obtained on application to surveyor. Deposit of 10*s.* 6*d.* Sealed tenders, addressed to the Chairman of the Watch Committee, care of Mr. John S. Brodie, Borough Surveyor, Town Hall, Blackpool, endorsed "South Shore Police-station," should be delivered not later than 10 a.m. on December 17.

DECEMBER 17.—**Marshfield.**—HOUSE.—The building of a house at Marshfield, Mon., near Cardiff, for the Rev. T. Harrys. The plans and specification may be seen at the office of the architect, Mr. W. H. D. Caple, 2, Church-street, Cardiff, from whom copies of the quantities may be obtained on deposit of 1*l.* 1*s.* Sealed and endorsed tenders to be delivered to the architect before 5 p.m. on December 17.

DECEMBER 18.—**Crewe.**—OFFICES AND STORES.—The Crewe Town Council invite tenders for the erection of new offices and stores at the electric light works. Quantities and conditions of contract on application to Mr. G. Eaton-Shore, Borough Surveyor, Municipal Offices, Earle-street, Crewe. A deposit of 1*l.* must accompany each application. Tenders to be sent to Mr. Frederick Cooke, Town Clerk, Municipal Offices, Crewe, not later than December 18, at 10 o'clock a.m., endorsed "Tender for Offices and Stores."

DECEMBER 18.—**Durham.**—ALTERATIONS AND ADDITIONS TO COLLEGE.—Proposed alterations and additions to St. Hild's College, Durham. Plans, etc., from Messrs. Joseph Potts & Son, architects and surveyors, 57, John-street, Sunderland, and quantities can be obtained on payment of 2*l.* 2*s.* Tenders to be sealed, endorsed, and delivered to architects not later than December 18.

DECEMBER 18.—**Saltaire.**—HOUSE.—A house at Saltaire. For quantities apply, from December 12 to December 18, to Messrs. Walker & Collinson, architects, Cheapside-chambers, Bradford.

DECEMBER 19.—**Alnwick.**—HOUSE.—For a proposed dwelling-house in Lisburn-street, Alnwick (joiner work excepted), for Mr. Wm. Graham. Plans and specifications may be seen at the office of Mr. M. Temple Wilson, M.R.S.I., architect and surveyor, Alnwick, to whom sealed and endorsed tenders are to be delivered on or before December 19.

DECEMBER 19.—**Morley.**—WEAVING-SHED.—The erection of weaving-shed at Crank Mills, Morley, for Mr. J. H. Smith. Plans and specifications may be seen, and quantities obtained, at Morley offices of Messrs. T. A. Buttery & S. B. Birds, architects, Queen-street, Morley; and at 1, Basinghall-square, Leeds. Sealed and endorsed tenders to be sent to the offices of Mr. J. H. Smith, Crank Mills, Morley, on or before December 19.

DECEMBER 20.—**Altrincham.**—COTTAGES.—The Altrincham U.D.C. invite tenders for the erection of cottages on Hale Moss for the working classes. Bills of quantities may be obtained, and the plans inspected, on application at the Surveyor's Office, Town Hall, Altrincham, during office hours. A charge of 1*l.* 1*s.* will be made for quantities. Sealed tenders, endorsed "Tender for Workmen's Cottages," and addressed to the Chairman of the Housing Committee, Town Hall, Altrincham, must be sent in not later than 12 o'clock noon on December 20.

DECEMBER 20.—**Golcar.**—ADDITIONS TO MILL PREMISES.—The excavators', masons', carpenters' and joiners', plumbers' and glaziers', patent glaziers', slaters', cast and steel founders', concreters', plasterers', tilers', and painters' works required in additions to mill premises, engine-house, etc., at Heathouse mills, Golcar. Plans may be seen, and quantities obtained, at Milnsbridge offices of Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield, until December 20, on which date sealed and endorsed tenders are to be delivered not later than 5.30 p.m., free of charge.

DECEMBER 20—JANUARY 14.—**Gosforth.**—SCHOOL.—Northumberland Education Committee invites tenders for the work of erecting a new Council school to accommodate 400 scholars at Gosforth, near Newcastle-on-Tyne. Name and address to Mr. C. Williams, Secretary to the Education Committee, Pearl-buildings, Newcastle-on-Tyne, not later than December 20, together with a deposit of 2*l.* 2*s.* Plans of the work may be inspected at the Committee's Offices, and tenders, endorsed "Tender for Gosforth Council School," must be forwarded to the Secretary not later than 5 p.m. on January 14.

DECEMBER 21.—**Derby.**—POWER-STATION.—Derby Corporation invite tenders for the erection of new electric power-station, Silk Mill-lane. Plans may be seen, and form of tender, etc., obtained (on and after December 13), on application at the office of Mr. John Ward, M.Inst.C.E., Borough Surveyor, Babington-lane, Derby, and upon the deposit of 1*l.* 1*s.* Tenders, endorsed "Power-station," are to be delivered, in the special envelope provided for the purpose, at the office of Mr. G. Trevelyan Lee, Town Clerk, Town Clerk's Office, 15, Tenant-street, Derby, not later than 10 a.m. on December 21.

DECEMBER 21.—**Maesteg.**—CHAPEL ALTERATIONS.—For reroofing, reseating, and various other works and alterations to Carmel Chapel, Maesteg, for the trustees. Plans and specifications may be seen at the office of architect, Mr. E. W. Burnett, M.S.A., architect, St. Michael's-road, Maesteg, from whom bills of quantities may be obtained upon payment of 1*l.* 1*s.* Sealed tenders, on form which will be supplied, to be sent to the Secretary, Mr. Jacob Jenkins, 13, Bank-street, Maesteg, on or before December 21, and endorsed "Chapel Alterations."

* DECEMBER 22.—**Lichfield.**—NEW WARDS.—The Guardians of the Lichfield Union invite tenders for new wards for the infirm and for children at the Union Workhouse, Lichfield, in accordance with plans prepared by Mr. R. J. Barnes, architect, City-chambers, Lichfield. Contractors desirous of tendering are requested to send in their names to Mr. Barnes not later than December 22, together with 2*l.* 2*s.* Plans may be seen at the office of the architect as above, and quantities will be forwarded as soon as possible.

DECEMBER 22.—**Tredegar.**—ALTERATIONS, ETC., TO INN.—Extensive alterations and additions to The Bush Inn, Tredegar, for Messrs. The Hereford and Tredegar Brewery Company, Ltd. Plans and specifications can be seen at The Bush Inn, and copy of bill of quantities obtained from Mr. Osborne Newcombe, architect and surveyor, Tredegar, on deposit of 1*l.* 1*s.* Sealed and endorsed tenders to be sent to Mr. A. D. Briscoe, Tredegar and Hereford Brewery, Bewell-street, Hereford, on or before December 22.

DECEMBER 24.—**St. Neot.**—HOUSE.—For erecting a dwelling-house at St. Neot. Plan and specification can be seen at Mr. Kitto's St. Neot. Tenders to be sent on or before December 24 to Mr. Fred Kitto, The Esplanade, Fowey.

DECEMBER 25.—**Talgarth.**—COTTAGES.—Brecon and Radnor Asylum (Talgarth, R.S.O.) Visiting Committee invite tenders for the erection of two semi-detached cottages on the Asylum estate. A plan and specification of the work to be done may be seen, and any particulars obtained, upon application at the Clerk's office in the Asylum. Tenders, sealed, and endorsed "Tender for Cottages," must be delivered, addressed to Mr. A. J. Astbury, Clerk to the Visiting Committee, not later than noon on December 26.

* DECEMBER 25.—**Worcester.**—WAREHOUSE AND OFFICES.—Builders desirous of tendering for new warehouse and offices at Worcester, for Messrs. Ray's, Ltd., should apply to Messrs. Simpson & Ayrton, architects, 3, Verulam-buildings, Gray's-inn, W.C., on or before December 25. Plans may be seen, and bills of quantities obtained, for which a deposit of 2*l.* 2*s.* will be charged.

DECEMBER 27.—**Penygraig.**—SCHOOL ALTERATIONS.—Rhondda U.D.C. invite tenders for alterations and improvements to the old school at Penygraig. Plans and specifications may be seen, and bills of quantities obtained, at the office of the architect, Mr. Jacob Rees, Hillside Cottage, Pentre, Rhondda, on the deposit of 2*l.* 2*s.* with the accountant at the Council Offices, Pentre. Sealed tenders, endorsed "Tender for Penygraig School Alterations," accompanied by the priced quantities under separate cover, must reach Mr. T. W. Berry, Director of Education, Council Offices, Pentre, Rhondda, not later than the first post on December 27.

* DECEMBER 29.—**Leicester.**—FARM BUILDINGS.—The Committee of Visitors of the Leicestershire and Rutland County Lunatic Asylum, Narborough, near Leicester, invite tenders for erection and completion of farm buildings at the new asylum, together with farm bailiff's house, etc., at Narborough, near Leicester. Conditions of contract, quantities, and form of tender may be obtained from the architects, Messrs. Everard, Son, & Pick, 6, Millstone-lane, Leicester, on payment of 2*l.* 2*s.* Sealed tenders, on the forms supplied, to be sent to Mr. W. J. Freer, 10, New-street, Leicester, before 10 a.m., December 29, addressed to "Chairman of the Asylum Committee," and endorsed "Tender for Farm Buildings."

DECEMBER 29.—**Rhosneigr.**—CHAPEL, ETC.—The erection of a Congregational chapel and schoolroom at Rhosneigr. Plans and specifications may be inspected at office of Mr. Jos. Owen, F.R.I.B.A., architect, Exchange-chambers, Holyhead. Tenders, sealed, and endorsed "Chapel, Rhosneigr," to be sent in to the Rev. E. B. Jones, Bryn Hyfryd, Holyhead, by not later than December 29.

DECEMBER 29.—**Seacombe Ferry.**—WORKSHOPS.—The Ferries Committee of the Wallasey U.D.C. invite tenders for the erection of new ferry workshops at Seacombe Ferry. Drawings, etc., may be seen, and form of tender and bill of quantities obtained, on application to Mr. W. H. Travers, Engineer and Surveyor, Public Offices, Egremont, Cheshire, on payment of a deposit of 1*l.* Tenders, in sealed envelopes, endorsed "New Workshops, Seacombe Ferry," to be addressed to Mr. H. W. Cook, Clerk and solicitor, and forwarded through post for delivery at the Public Offices not later than December 29.

* JANUARY 3.—**Edmonton.**—ADDITIONS TO SLIPPER-BATHS.—The Edmonton U.D.C. invite tenders for alterations and additions to the Council's slipper-baths, and the covering-in of the open swimming-bath. Names to be sent to Mr. W. Francis Payne, Clerk to the Council, Town Hall, Edmonton, on or before December 17, when quantities, by Messrs. Young & Brown, will be forwarded as soon as may be convenient. Plans can be inspected at the architect's office at the Town Hall, Lower Edmonton. Sealed tenders, endorsed "Tender for Baths," to be delivered to the Clerk before 12 noon, January 3.

JANUARY 12.—**Gateshead.**—CLASSROOMS, ETC.—For the erection of additional classrooms, laboratory, etc., at the secondary schools, Durham-road. Plans, etc., can be seen, and bill of quantities obtained, at the office of Mr. N. Percy Pattison, Borough Engineer, Town Hall, Gateshead, on payment of 1*l.* 1*s.*. Tenders, sealed, and endorsed "Tender for Aditions to Secondary Schools," to be sent in on or before January 12.

JANUARY 12.—**Loughrea.**—ADDITIONS, ETC., TO CHURCHES.—For additions and improvements to the churches of Abbey and Duniry, Loughrea, Co. Galway. Plans, etc., can be seen at Duniry, and office of Mr. W. A. Scott, A.R.I.B.A., 45, Mountjoy-square, Dublin, architect. Sealed tenders, marked "Abbey and Duniry Churches," to be sent to the Rev. P. Egan, P.P., Duniry, to arrive on or before January 12.

* JANUARY 15.—**Enfield.**—SCHOOL.—Enfield Education Committee invite tenders for the erection of junior mixed school at Bush Hill Park, Enfield. Application for bills of quantities to be made to the architect, Mr. G. E. T. Laurence, 22, Buckingham-street, Adelphi, W.C., before December 29. Sealed tenders on form supplied must be delivered at the Clerk's Office, Public Offices, Enfield, not later than 12 noon, January 15.

* JANUARY 22.—**Eltham.**—REFRESHMENT HOUSE.—The London C.C. invite tenders for the erection of a refreshment house at Avery Hill, Eltham. Full particulars and also information as to the conditions will be given in the *London C.C. Gazette* of December 17, to be obtained from Messrs. P. S. King & Son, Great Smith-street, Westminster (price 1*d.*, post free 1½*d.*). Tenders must be upon the official forms, and no tender will be received after 10 a.m., January 22.

NO DATE.—**Belfast.**—PLASTERING, ETC.—For plastering and stone finishing premises in course of erection, 119 and 121, Peter's-hill, and 1 and 3, North Boundary-street. For instructions apply Messrs. E. & J. Byrne, architects, 4, Waring-street, Belfast.

NO DATE.—**Belfast.**—REMODELLING PREMISES.—The remodelling of the licensed premises, University-road, Belfast. Plans, specification, and particulars of the work may be obtained at offices of Mr. J. V. Brennan, C.E., architect, Belfast Bank-chambers, Belfast.

NO DATE.—**Bridlington.**—THEATRE.—The erection of a theatre on the New Spa, Bridlington. Names to Messrs. Brodrick, Lowther, & Walker, architects, at York-chambers, 77, Lowgate, Hull, together with a deposit of 2*l.* 2*s.* Bills of quantities and further particulars will be sent to such depositors only.

NO DATE.—**Creswell.**—SHOPS.—Erection at Creswell of five shops with houses attached, also for two private dwelling-houses. Names to Mr. H. Stockton Judd, F.I.A.S., architect and surveyor, Shirebrook, Mansfield.

NO DATE.—**Huddersfield.**—PAVILION.—The erection of a brick pavilion, 53 ft. by 26 ft., on the ground of the Marsh United Bowling Club, Ltd., Cross-lane, Marsh, Huddersfield. Plans and specifications may be seen by appointment with the Secretary, Mr. J. K. Brammer, 19, Church-street, Paddock, Huddersfield.

NO DATE.—**Newlay.**—GALVANISED BUILDING.—For pulling down and re-erecting galvanised building about 50 ft. by 28 ft. at Newlay. Apply Messrs. Tunstall & Co., Ltd., Leeds Bridge or Newlay.

NO DATE.—**Nottingham.**—HOUSES.—Erection of three houses, Wells-road, Nottingham. Names to Mr. Fred. Mitchell, architect and surveyor, 9, Upper Fountaine-street, Albion-street, Leeds, at once (stating trade), and quantities will be duly forwarded to them.

NO DATE.—**Ponthenry.**—ENGINE-HOUSE.—For putting in foundations and building fan engine-house at Ponthenry Colliery, near Llanelly. For particulars write to the Bargoed Coal Company, Ltd., Cardiff.

✱ NO DATE.—**Woolwich.**—SOLDIERS' QUARTERS.—Tenders are invited for the erection of forty "B" type married soldiers' quarters at Woolwich. Plans, specifications, and conditions of contract may be inspected at the office of Mr. Harry B. Measures, F.R.I.B.A., War Office, Grosvenor-road, Atterbury-street, S.W., on December 18, 19, and 20, and bills of quantities and form of tender obtained on those days only.

ENGINEERING, IRON, AND STEEL.

DECEMBER 18.—**London.**—FISHPLATES.—The Secretary of State for India in Council invites tenders for the supply of fishplates for 90-lb. rails. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W., and tenders are to be delivered at that office by 2 o'clock p.m. on December 18.

DECEMBER 18.—**Manchester.**—PERMANENT WAY POINTS.—Manchester Corporation Tramways Committee invite tenders for the supply of permanent way points, tongues, and hardened steel centres. Specifications and forms of tender may be obtained on application to Mr. J. M. McElroy, General Manager, Tramways Department, 55, Piccadilly, Manchester, on deposit of 1*l.* 1s. Drawings may be inspected at the engineer's office, 55, Piccadilly, Manchester, on production of the specification. Tenders are to be addressed to the Chairman of the Tramways Committee, 55, Piccadilly, Manchester, endorsed "Tender for Points, etc.," and must be received not later than 10 a.m. on December 18.

DECEMBER 18.—**New Sarum.**—BOILER, ETC.—New Sarum T.C. invite tenders for supplying and fixing a boiler and two radiators, etc., at the new fire-station, Salt-lane. A specification can be seen at the office of the City Surveyor, Endless-street, on and after December 10. Tenders by December 18, Mr. Francis Hodding, Town Clerk, Municipal Offices, Salisbury.

DECEMBER 19.—**Maldon.**—DEEPENING WELL.—Maldon (Essex) T.C. invite tenders for deepening a well at their Wantz-road Pumping Station. Plan and specification may be seen at the office of Mr. T. R. Swales, Borough Surveyor, London-road, Maldon. Tenders, endorsed "Tender for Well," to be delivered to Mr. F. H. Bright, Town Clerk, Town Clerk's Office, High-street, Maldon, on or before December 19.

DECEMBER 19.—**Scalby.**—WIDENING BRIDGE.—North Riding of Yorkshire C.C. invite tenders for rebuilding and widening of Newby Bridge (stone), at Scalby, near Scarborough, on the Whitby and Scarborough main road. Plans and specification may be seen, and bills of quantities obtained, at the County Surveyor's Office, County Hall, Northallerton, from December 10 to 19 inclusive.

DECEMBER 19.—**Trenholme Bar.**—BRIDGE WORKS.—North Riding of Yorkshire C.C. invite tenders for widening and strengthening bridge (stone), near Trenholme Bar, on the Thirsk and Yarm main road. Plans and specification may be seen, and bills of quantities obtained, at the County Surveyor's Office, County Hall, Northallerton, from December 10 to 19 inclusive.

DECEMBER 22.—**Porthcawl.**—SEA WALL, ETC.—Porthcawl U.D.C. invite tenders for the construction of a concrete sea defence wall at the Esplanade, Porthcawl, in length 216 lin. ft., according to the plans etc., prepared by Mr. R. W. Jones, the Council's Engineer, and which are deposited, and may be inspected, at the Council Offices, Porthcawl, by appointment with the Engineer. Copies of specification and form of tender will be supplied upon receipt of 2*l.* 2s. Tenders, marked "Esplanade Sea Wall Extension," are to be sent to Mr. Edward T. David, Clerk to the above-named Council, Council Offices, Porthcawl, on or before December 22.

DECEMBER 28.—**Islington.**—FAN.—Islington B.C. Lighting Committee invite tenders for the supply and erection of a fan, 12 ft. in diameter, and a single-phase alternating current motor for driving the same. The fan to deliver 300,000 cubic ft. of air per minute against a resistance of ½ in. of water. Specification, form of tender, etc., can be obtained upon application to the Borough Electrical Engineer, 50, Eden-grove, Holloway, N. Tenders, in a sealed envelope, endorsed "Tender for Electric Fan," must be forwarded to Mr. Wm. F. Dewey, Town Clerk, Town Hall, Upper-street, N., not later than December 28.

DECEMBER 31.—**Belfast.**—DYNAMOS AND PLANT.—The Tramways and Electricity Committee of the Belfast Corporation invite tenders for the following plant:—Specification No. G 1, 1,000 Kilowatt steam dynamos specification No. G 2, condensing plant. Specifications, with form of contract, may be obtained from Mr. Victor A. H. M'Cowen, M.Inst.E.E., M.I.Mech.E., City Electrical Engineer, Belfast, on payment of 2*l.* 2s. each. Sealed tenders, endorsed "Tender for Steam Dynamos," or "Tender for Condensing Plant" shall be lodged with Sir Samuel Black, City Hall, Belfast, not later than 11 a.m. on December 31.

DECEMBER 31.—**Brackley.**—SINKING A WELL.—Brackley B.C. invite tenders for sinking a well in the Borough of Brackley. Specification and form of tender may be obtained, and plans seen, at the office of the Town Clerk at Brackley, and information and any further particulars may be obtained on application to Mr. John Eunson, C.E., Northampton. Copies of specification may be obtained on payment of 2*l.* Tenders, upon the forms supplied, must be delivered at the office of Town Clerk, Town Clerk's Offices, Brackley, not later than 10 o'clock in the forenoon of December 31, addressed to Mr. C. E. Barnes, Town Clerk, endorsed "Tender for Well."

JANUARY 1.—**Norwich.**—TUBES.—For solid drawn or lap welded wrought iron or steel socketted tubes. Form of tender and specification may be obtained on application to Engineer. Tenders, on the forms supplied, enclosed in envelopes sealed with sealing-wax, endorsed "Tubes," and addressed to the Chairman of the Sewerage Committee, must be delivered at office of Mr. Arthur E. Collins, M.Inst.C.E., City Engineer, Guildhall, Norwich, not later than 10 a.m. on January 1.

JANUARY 7.—**Scarborough.**—RAILWAY SIDINGS.—The North-Eastern Railway Company Directors invite tenders for the construction of a group of carriage sidings (about four miles in length) at Scarborough, on the west side of the Scarborough and Whitby Railway. Plans may be seen, and specification, detailed quantities, and form of tender obtained, on personal application only, at the office of Mr. W. J. Cudworth, the Company's Engineer, at York. Sealed tenders, marked "Tender for Carriage Sidings, Scarborough," to be sent to the Secretary at York not later than noon on January 7.

JANUARY 9.—**Worthing.**—WELL-SINKING.—Worthing Corporation invite tenders for the various works required in the sinking of a well, 115 ft. deep, lined with iron cylinders, and the driving of headings and other works in connexion therewith. Plan, etc., may be seen, and form of tender obtained, on application to Mr. Frank Roberts, A.M.Inst.C.E., Borough Water Engineer and Surveyor. Sealed tenders, endorsed "Tender for Well," to be sent in to Mr. W. Verrall, Town Clerk, Municipal Offices, Liverpool-road, Worthing, not later than 12 noon on January 9.

JANUARY 10.—**Swansea.**—CRANE.—Swansea Harbour Trustees invite tenders for a 2-ton portable high pedestal hydraulic crane with a radius of 40 ft. Further particulars can be obtained on application to the Trustees' engineer, Mr. A. O. Schenk, M.Inst.C.E., at the Harbour Offices, Swansea. Tenders, sealed, and marked "Hydraulic Crane," should be delivered to Mr. Talfourd Strick, Clerk, Harbour Offices, before 10 a.m. on January 10.

✱ JANUARY 11.—**Aberystwyth.**—EQUIPMENT OF NEW DAVIES MEMORIAL CHEMICAL LABORATORIES AT ABERYSTWYTH.—Drawing seen, and specifications obtained, of Dr. Sudborough, University College, Aberystwyth, or the architect, Mr. A. W. Cross, 46, New Bond-street, London, W., after December 18. Tenders to be in by January 11.

JANUARY 20.—**Weaste, Salford.**—PUMPS.—Salford Corporation invite tenders for new sewage pumps to two large pumping engines at the Salford Sewage Works, Weaste. Drawings and specifications may be obtained from the Borough Engineer, Town Hall, Salford, on payment of 1*l.* Tenders, endorsed "Sewage Pumps," and addressed to the Chairman of the Rivers Committee, Town Hall, Salford, must be delivered at office of Mr. L. C. Evans, Town Clerk, Town Hall, Salford, not later than 12 noon on January 30.

APRIL 2.—**Bombay.**—RECLAMATION.—Bombay Port Trustees invite tenders for the construction of a reclamation between Mazagon and Sewri. The contract will include the building of a rubble masonry quay wall, about 12,600 ft. long, on piled foundations, and the reclamation of about 518 acres of the foreshore, such reclamation to be effected by silt or mud pumped or dredged from the bed of the harbour, and covered with a layer of good earth. Copies of the specification and drawings of the work can be obtained from the Chief Engineer, Bombay Port Trust, Ballard-road, Bombay; or from the Trustees' consulting engineers, Messrs. Sir J. Wolfe Barry & A. J. Barry, 7, The Sanctuary, Westminster, S.W., on payment of 5*l.* sterling. Tenders, which must be endorsed "Tenders for Mazagon-Sewri Reclamation," and accompanied by a deposit of Rs. 10,000 (666*l.*), will be received by the Secretary, Bombay Port Trust, Bombay, up to 5.30 p.m.; or by the Trustees' consulting engineers, 7, The Sanctuary, Westminster, up to noon on April 2.

NO DATE.—**Netherburn.**—BOILER.—For building a 26-ft. by 8-ft. boiler; materials supplied. Brand & Co., Netherburn.

NO DATE.—**Ynysybwl.**—WEIGHBRIDGE.—For fixing a railway weighbridge and erecting office, etc., at the Mynaobdy Colliery, Ynysybwl, near Pontypridd. Plans and particulars may be obtained of the Manager at the Colliery.

MISCELLANEOUS.

DECEMBER 15.—**Chorley.**—DISINFECTING LIQUID.—Chorley Corporation invite tenders for twelve months' supply of disinfecting liquid, from January 1 next. Forms of tender may be obtained from Mr. Jno. Mills, Town Clerk, Town Hall, Chorley. Tenders, endorsed "Disinfectant," to be sent to the Clerk on or before December 15.

DECEMBER 18.—**London.**—SCAVENGING.—The Council of the Metropolitan Borough of St. Marylebone invite tenders for the removal of house refuse from the whole of the houses and premises in the south district of the borough, in covered vans or carts, for one, two, or three years, commencing April 1, 1907. Particulars of the district, for the purpose of this contract, with the printed form of tender, and conditions of contract, may be had on application to the Clerk. Tenders must be on the printed form supplied by the Borough Council, and must be delivered, sealed and endorsed "Tender for Removal of House Refuse," to Mr. James Wilson, Town Clerk, Town Hall, Marylebone-lane, Oxford-street, W., on or before 10 a.m. on December 18. The contractor will be required to enter into a bond with two approved sureties in sum of 1,000*l.*

DECEMBER 18.—**Marylebone.**—SCAVENGING.—The B.C. of St. Marylebone invite tenders for removal of house refuse from the whole of the houses and premises in the south district of the borough, in covered vans or carts, for one, two, or three years, commencing April 1, 1907. Particulars of the district, for the purpose of this contract, with the printed form of tender and conditions of contract, may be had on application to Mr. James Wilson, Town Clerk, Town Hall, Marylebone-lane, Oxford-street, W. Tenders must be on the printed form supplied by the Borough Council, and must be delivered, sealed, and endorsed "Tender for Removal of House Refuse," to the Clerk on or before 10 a.m. on December 18.

DECEMBER 19.—**Barton-upon-Humber.**—SCAVENGING.—Barton-upon-Humber U.D.C. invite tenders for the scavenging of the town from February 1 next. The town is divided for this purpose into six districts, and separate tenders must be sent in for each district. Forms of tender and of the specification may be had on application to Mr. D. Houghton, the Inspector, where also a plan of the districts may be seen. Tender to be sent to the Inspector, endorsed with the number of the district, so as to reach him not later than 12 o'clock noon on December 19.

✱ DECEMBER 19.—**Hampstead.**—REMOVAL OF SLOP, ETC.—The Hampstead B.C. invite tenders for (1) removal of slop from roads and gullies, (2) horsing carts, for one or three years, at the option of the Council, from April 1 next. Full conditions are contained in the forms of tender, which may be had and further particulars obtained on application to Borough Engineer at the Town Hall. Tenders to be delivered to Mr. Arthur P. Johnson, Town Clerk, Town Hall, Haverstock Hill, N.W., before 4 p.m., December 19.

DECEMBER 19.—**Maldon.**—DEEPENING WELL.—Maldon, Essex, T.C. invite tenders for deepening a well at their Wantz-road Pumping Station. Plan and specification may be seen at the office of Mr. T. R. Swales, Borough Surveyor, London-road, Maldon. Tenders, endorsed "Tenders for Well," to be delivered to Mr. F. H. Bright, Town Clerk, Town Clerk's Office, High-street, Maldon, on or before December 19.

DECEMBER 19.—**Salford.**—BRUSHES.—Salford Lighting and Cleansing Committee invite tenders for the supply of new sweeping brushes and the refilling of sweeping and machine brush stocks. Samples may be seen, and all information obtained, on application to the Superintendent of the Lighting and Cleansing Department, Wilburn-street, Salford. Tenders, endorsed "Brushes," must be delivered at the Superintendent's Office not later than December 19 by 3 p.m.

✱ DECEMBER 20.—**Kilmarnock.**—DEMOLITION, ETC.—Commissioners of H.M. Works and Public Buildings invite tenders for the demolition of old post-office at Kilmarnock, and for the foundations of new one. Drawings, specifications, copy of conditions, and form of contract may be seen on application to Messrs. R. Scott & Son, 115, Wellington-street, Glasgow. Bill of quantities and forms of tender obtainable from Mr. W. T. Oldrieve, H.M. Office of Works, Edinburgh. Tenders, endorsed "Tender for Foundations, etc., Post Office, Kilmarnock," and addressed The Secretary, H.M. Office of Works, etc., Storey's Gate, S.W., must be delivered before December 20.

DECEMBER 20.—**Salford.**—FIRECLAY GOODS.—Salford Gas Committee invite tenders for the supply of retorts, fire bricks, etc., required at their various works. Full particulars may be obtained on application to Mr. William W. Woodward, engineer, Gas Offices, Broom-street, Salford. Sealed tenders, endorsed "Tender for Fireclay Goods," addressed to the Chairman of the Gas Committee, Town Hall, Salford, to be delivered to Mr. L. C. Evans, Town Clerk, Town Hall, Salford, not later than 3 p.m. on December 20.

DECEMBER 22.—**Chesterton.**—SCAVENGING.—Chesterton R.D.C. invite tenders for the removal of house refuse from St. John's Ward, Cherryhinton, and Newnham Croft, Grantchester, for twelve months, from Christmas next. Tenders must be sent to Mr. John F. Symonds, Clerk, 9, Bene't-street, Cambridge, not later than December 22, and may be for one or both districts.

DECEMBER 28.—**Lancaster.**—HOSPITAL FURNITURE.—For furniture for new hospital for County Lunatic Asylum, Lancaster. Samples may be inspected at the Asylum on Wednesdays and Saturdays from December 5 to 19. Tenders, endorsed "Tender for Furniture," will be received on or before December 28. Address:—Medical Superintendent.

PAINTING, etc.

DECEMBER 17.—**Leeds.**—PAINTING, ETC.—Leeds Corporation invite tenders for cleaning down, painting, etc., at the Union-street, Holbeck-lane, and Kirkstall-road Baths. Forms of tender, specifications, and all particulars may be obtained, and copies of the documents forming the contracts may be inspected, at the City Engineer's Office, on payment of a deposit of 1*l.* 1s. Tenders, properly endorsed, should be received at the Town Clerk's Office not later than 10 a.m. on December 17.

DECEMBER 28.—**Mickleover.**—PAINTING.—Derby County Asylum (Mickleover, near Derby) Committee of Visitors invite tenders for painting at the institution. Copies of specifications and any information required can be obtained on application to the Engineer at the Asylum. Tenders, marked "Painting," to be sent to Mr. B. Scott Currey, Clerk to the Visiting Committee, St. Michael's Churchyard, Derby, not later than December 28.

ROADS, SANITARY, AND WATER WORKS.

DECEMBER 17.—**Halifax.**—STREET IMPROVEMENT WORKS.—Halifax Highways Committee invite tenders for the execution of private improvement works in the street leading from Burnley-road to Old Willow Hall. Plans and specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.* Tenders, endorsed "Street off Burnley-road," must be sent to Mr. Keighley Walton, Town Clerk, on or before December 17.

✱ DECEMBER 17.—**Hendon.**—DRAINAGE AND ROADS.—The Hendon U.D.C. invite tenders for storm-water drainage works, Edgware-road; also for certain kerbing, channelling, and stone-paving works in the Edgware-road, West Hendon. The drawings and specification may be seen, and form of tender obtained, of Mr. S. Slater Grimley, Engineer and Surveyor, at the Council Offices, The Burroughs, Hendon, N.W., on deposit of 10*l.* Sealed tenders, endorsed "Edgware-road Storm-water Drain and Paving Works," addressed to the Chairman of the Council, to be sent to Mr. H. Humphris, Council Offices, The Burroughs, Hendon, N.W., not later than 5 p.m., December 17.

DECEMBER 18.—**Cymmer.**—STREET WORKS.—Glyncorrwg U.D.C. invite tenders for private street improvement works in Margam-street, Cymmer. Plans and specifications may be seen, and bills of quantities obtained, at the office of the Surveyor, Mr. W. P. Jones, Council Offices, Cymmer, Port Talbot. Sealed tenders, marked "Tender for Street Works," and giving names of two sureties who will join in a bond for the due performance of the work, to be

sent to Messrs. Cuthbertson & Powell, Clerks, Waterstreet, Neath, not later than December 18.

* DECEMBER 18.—**Willesden.**—ROADS, ETC.—The Willesden D.C. invite tenders for certain road-making and paving works in various roads. Plans and specification may be seen, and all further particulars obtained, on and after December 10, on application to Mr. O. Claude Robson, Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W. The tenders, upon printed forms, and endorsed "Private Streets," to be delivered at the Offices of the Council not later than 4 p.m., December 18.

DECEMBER 19.—**Carshalton.**—ROADWORKS.—Carshalton U.D.C. invite tenders for the making-up of Lavender-road, within their district (Mr. William Willis Gale, A.M.Inst.C.E.). Bills of quantities and all particulars can be obtained on application at office of Mr. C. P. Lovelock, Clerk, U.D.C. Offices, High-street, Carshalton, and on deposit of 1*l*. Sealed tenders, accompanied by a priced-out bill of quantities, addressed to the Chairman, and endorsed "Tender for Lavender-road," to be delivered at office of Clerk before noon on December 19.

DECEMBER 19.—**Chiswick.**—STREET IMPROVEMENTS.—The U.D.C. of Chiswick invite tenders for street improvement works (including demolition of buildings and making good of adjacent properties, erection of walls, etc.) at (*a*) Back-lane and (*b*) Bolton-gardens. Forms of tender, etc., on application to Mr. John Barclay, Surveyor of the Council, at the Town Hall, Chiswick, where they may be inspected. Tenders are to be made on the prescribed form, and to be delivered, in a sealed cover, endorsed "Tender for Street Improvement Works at Back-lane or Bolton-gardens," together with schedules of prices, to Mr. Ernest F. Collins, Clerk of the Council, Town Hall, Chiswick, W., not later than 8 p.m. on December 19.

DECEMBER 19.—**Ilford.**—SEWER.—Ilford U.D.C. invite tenders for providing and laying about 720 yds. lin. 27-in. concrete tube sewer, with manholes complete, along Sunnyside-road and Loxford-lane, from Hampton-road to the Outfall Works. Plans, etc., may be seen, and form of tender obtained, on application to Mr. H. Shaw, A.M.Inst.C.E., Engineer and Surveyor to the Council, at the Town Hall, Ilford, on payment of a deposit of 2*l*. 2*s*. Tenders, endorsed "Tender for Sewer," must be delivered to Mr. John W. Benton, Clerk to the Council, Town Hall, Ilford, not later than noon on December 19.

DECEMBER 21.—**Carlisle.**—WATER MAINS, ETC.—For providing and laying water mains, branches, and fittings for the supply of Rickerby Mansion and Estate, Carlisle. Names and addresses to Mr. John Little, civil engineer, Eaglesfield Abbey Rooms, Castle-street, Carlisle, on or before December 21. Quantities and form of tender will be supplied when ready on receipt of 1*l*. 1*s*. deposit.

DECEMBER 26.—**Edinburgh.**—SEWER.—The Governors of Trinity Hospital invite tenders for the several works required in execution of proposed pipe sewer at Trinity Hospital, Dean Park and Blinkbonny drainage. Schedule of quantities, and form of tender, can be obtained on applying to the Burgh Engineer, Police-chambers. Tenders must be sent to Mr. Thomas Hunter, W.S., Town Clerk, City-chambers, Edinburgh, not later than 10 a.m. on December 26, marked "Tender, Dean Park and Blinkbonny Drainage."

* DECEMBER 27.—**Chipping Ongar.**—TAR AND WOOD-BLOCK PAVINGS.—The Guardians of the Hackney Union invite tenders for executing tar and wood-block pavings, erection of terrace wall, and entrance gates, and sundry other works, at the Children's Homes at Chipping Ongar, Essex. The specification, conditions of contract, and plans (as prepared by Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.), may be seen at office of Mr. Frank R. Coles, Clerk to the Guardians, Hackney Union, Homerton, N.E., and bills of quantities and form of tender will be forwarded upon deposit of 1*l*. 1*s*. Sealed tenders, endorsed "Pavings, Buildings, etc., at Ongar," must be delivered to the Clerk before 2 p.m., December 27.

DECEMBER 28.—**Clontarf, Dublin.**—SEWERAGE WORKS.—The Improvements Commitcee of the Corporation of Dublin invite tenders for the construction of about fourteen miles of pipe sewers, ejector stations, rising mains, air-transmission mains, air-compressing station, together with the supply and erection of various machinery and auxiliary works connected therewith, chiefly in the East Clontarf and West Clontarf Wards of the City of Dublin. The drawings, specification, bills of quantities, and forms of tender may be inspected at the office of the City Engineer, City Hall, Dublin, and at the office of the consulting engineer, Mr. George Chatterton, M.Inst.C.E., 6, The Sanctuary, Westminster, and a limited number of copies of the said documents may be obtained on payment of the sum of 5*l*. 5*s*. (crossed cheques only will be received in payment). No copies of the documents will be sent to contractors until they have been inspected by a representative of the firm. Tenders, sealed, and endorsed on the envelope "Tenders for Clontarf Sewerage," must be addressed to the Chairman of the Improvements Committee, City Hall, Dublin, and delivered before 12 o'clock noon on December 28. With each tender must be submitted the names of two sureties who will be prepared to execute a joint and several bond for the due performance of the contract in a sum of 10,000*l*.

DECEMBER 31.—**Leyton.**—STREET WORKS.—Leyton U.D.C. invite tenders for the making-up, kerbing, and paving certain private streets within their district. The paths are to be paved with Patent Victoria Indurated and Patent Aberdeen Adamant stone, and certain passageways are to be paved with blue Staffordshire paving bricks. Specification, form of tender, etc., may be obtained on application to Mr. William Dawson, M.Inst.C.E., the Council's Surveyor, at his offices, Town Hall, Leyton. Sealed tenders, in special endorsed envelopes supplied with the forms, must be delivered at the meeting of the Council to be held on December 31, at the Town Hall, Leyton, at 7 o'clock p.m.

JANUARY 2.—**Ashwell.**—SEWERAGE WORKS.—Ashwell R.D.C. invite tenders for sewerage works for the parish of Ashwell. The works comprise about two and a half miles of stoneware pipes (chiefly 12 in. and 9 in.), with manholes and other appurtenant works; also small sedimentation tanks, and laying-out 9 acres of land for filtration. Plans and specifications can be seen at the offices of the Engineers, Messrs. Elliott & Brown, Burton-buildings, Parliament-street, Nottingham, and copies of the bill of quantities and form of tender obtained on deposit of 2*l*. 2*s*. (by cheque). Sealed and endorsed tenders to be delivered to Mr. Arthur Sharpe, Clerk to the Council, Royston, Herts, on or before the first post on January 2.

JANUARY 3.—**Mountain Ash.**—SEWER.—Aberdare U.D.C. invite tenders for the laying of about 600 lin. yds. of 27-in. cast-iron sewer, and the lifting and relaying of about 470 lin. yds. of 27-in. cast-iron sewer, and the lifting and relaying of about 230 timber tubing, with all necessary manholes, sluices, etc., at Cwm Cynon, Mountain Ash. Plans, sections, and specification may be inspected at the Surveyor's Office, Town Hall. Sealed tenders, endorsed "Outfall Sewer," must be delivered to Mr. Thos. Phillips, Clerk, Town Hall, Aberdare, on or before January 3.

* JANUARY 5.—**Paddington.**—WOOD PAVING.—Paddington B.C. invite tenders for contracts in connexion with wood paving Clifton-gardens, Warwick-avenue (part of), Warwick-avenue (part of), Porchester-gardens (part of), and Amberley-road (part of). Conditions, specifications, form of tender, and further particulars can be had on application, between 10 a.m. and 4 p.m. (Saturdays, 10 a.m. and 1 p.m.), to the Borough Surveyor. Sealed tenders, endorsed as instructed, to be addressed and delivered to Town Clerk, Town Hall, Paddington, on or before January 5.

JANUARY 7.—**Batley.**—ROADWORKS.—Batley T.C. invite tenders for the levelling, paving, flagging, and completing of each of the following streets, namely:—Borough-road, Fleece-street, Cooper-street, Ambler-place, Fox-place. Plans, etc., may be seen, and forms of tender, together with schedules of quantities and other particulars, obtained, at the office of the Borough Engineer, Mr. Oscar J. Kirby, Town Hall, Batley. Sealed tenders, on the forms provided, endorsed "Tender for ——," to be delivered at office of Mr. J. H. Craik, Town Clerk's Office, not later than January 7.

JANUARY 12.—**Chelmsford.**—WOOD PAVING.—Chelmsford B.C. invite tenders for laying about 140 sq. yds. of footpaths with concrete flags, excavating, laying a concrete foundation, and paving with wood blocks an area of about 800 sq. yds. in New-street, Chelmsford. Plan and specification may be seen at the office of the Borough Surveyor, Mr. Cuthbert Brown, A.M.Inst.C.E., 16, London-road, Chelmsford. Tenders, endorsed "Tenders for Wood Paving," must be delivered at the office of Mr. Thos. Dixon, Town Clerk, Town Clerk's Office, 16, London-road, Chelmsford, not later than January 12.

JANUARY 13.—**Kettering.**—SEWAGE DISTRIBUTOR.—Kettering U.D.C. invite tenders for the provision of distributing apparatus on rectangular percolation filter beds. Full particulars of requirements may be obtained from the Council's Surveyor. Tenders to be delivered at the office of Mr. Thos. R. Smith, Engineer and Surveyor, Surveyor's Office, Market-place, Kettering, not later than January 13.

JANUARY 22.—**Sowerby Bridge.**—SEWAGE WORKS.—Sowerby Bridge U.D.C. invite tenders for the undermentioned works at the Sewage Works, Milner Royd, Sowerby Bridge, viz., the supply, delivery, and filling the remaining twelve bacteria beds with filtering medium; quantity, about 9,000 cubic yds. Conditions and samples of filtering medium, etc., may be seen at the Engineer's Office, Hollings Mill-lane, Sowerby Bridge, by appointment. Specification and quantities may be obtained on application to the engineer, Mr. C. L. Whitehead, C.E., M.E., Sowerby Bridge, on payment of a 5*l*. Bank of England note only. Tenders, endorsed "Bacteria Beds," and addressed and delivered to Mr. R. W. Evans, Clerk and Solicitor to the Council, Commercial Bank-chambers, Halifax, in sealed envelopes, not later than January 22.

STONE, MATERIALS, AND STORES.

DECEMBER 15.—**Aberdeen.**—MATERIALS.—The Town Council of Aberdeen (Police Department) invite tenders for supplying the following articles and work, as required for the year 1907, viz.:—Cast iron; malleable iron and ironmongery; brass work; lead and tin pipes and plumber work; tinsmith work, timber, painter and glazier work, fireclay pipes; bricks; lime; gasking and rope yarn; brushes; Portland cement; oils, etc. Schedules of quantities, conditions of contract, and information regarding the various articles required can be had at the Burgh Surveyor's office. Tenders for, and samples of, brushes are to be lodged with the cleansing inspector, Poynernook-road; and tenders for other articles or work are to be lodged with Mr. Wm. Dyack, Burgh Surveyor, Burgh Surveyor's Office, Aberdeen, not later than December 15, at 10 o'clock a.m.

DECEMBER 17.—**Aberdeen.**—STORES.—The T.C. of Aberdeen invite estimates for supplying the following articles for one year, from January 1 to December 31, 1907:—Cast-iron work; malleable iron, steel goods, and ironmongery; brass, lead, and tin work; brushes; ropes, rope yarn, tow, etc.; painter and glazier work; timber; carting; tallow and drysalteries, etc. All according to schedules, etc., which will be delivered to intending contractors at the Gas Engineer's Office, Cotton-street. Sealed tenders, addressed to the Town Council, and marked as such, to be delivered on or before December 17, at Gas Works, Aberdeen.

DECEMBER 17.—**Halifax.**—STORES.—Halifax Waterworks Committee invite tenders for the supply of (1) cast-iron pipes; (2) lead piping and pig lead; (3) gun-metal fittings, required during the fifteen months ending March 31, 1908. Further particulars may be obtained on application to Mr. R. J. Hartley, A.M.Inst.C.E., Waterworks Engineer, Gibbet-street, Halifax. Tenders, endorsed "Waterworks," together with the names of the articles tendered for, must be sent to Mr. Keighley Walton, Town Clerk, not later than 12 o'clock noon on December 17.

DECEMBER 17.—**Hastings.**—CEMENT.—Hastings Corporation invite tenders for the supply and delivery to Hastings Railway Station of 1,000 tons of Portland cement. Specification and form of tender may be obtained at the office of the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Town Hall, Hastings. Tenders, under cover, endorsed "Tender for Portland Cement," to be delivered to Mr. Ben. F. Meadows, Town Clerk, Town Hall, Hastings, at the Town Hall, Hastings, not later than 12 o'clock noon on December 17.

DECEMBER 18.—**Sunderland.**—MATERIALS.—Sunderland R.D.C. invite tenders for the following works and materials in their district for one year from January 1 next, viz.:—(1) Street lamps, fire hydrants, and road gulleys; (2) manhole covers, frames, and dirt pans; (3) lamphole covers, frames, etc.; (4) asphalting, freestone kerb, and sanitary pipes; (5) hardware; (6) oils, paints, and glass; (7) disinfectants; (8) repair work. Drawings and patterns may be seen on application to the surveyor. Tenders, accompanied by samples of certain specified articles, are to be sealed and addressed to the Clerk to the Council, and delivered at his office not later than noon of December 18. Forms of tender may now be obtained on application to Mr. J. C. Wilson, Clerk to the Council, Offices, 17, John-street, Sunderland.

DECEMBER 19.—**Halifax.**—STORES.—Halifax Gasworks Committee invite tenders for the supply of (1) ironmongery; (2) steel goods; (3) fireclay goods; (4) tarred gaskin, etc.; (5) iron valves and connexions; (6) wet and dry gas meters, required during the year ending December 31, 1907. Forms of tender and further particulars may be obtained on application to Mr. John Wilkinson, F.C.S., Engineer, Gasworks, Halifax. Tenders, endorsed "Gasworks," together with the names of the articles tendered for, must be sent to Mr. Keighley Walton, Town Clerk, not later than 10 o'clock a.m. on December 19.

DECEMBER 19.—**Handsworth.**—MATERIALS.—Handsworth U.D.C. invite tenders for supplying the undermentioned goods and materials during the year ending December 31, 1907:—Macadam stone; kerbs and setts; iron slag; bricks; fireclay; cement and lime; drain pipes; iron castings; glass; brushes, shovels, picks, and other tools; pitch, tar, and asphalt. Conditions of contract and specification may be seen, and forms of tender obtained, on application to the Surveyor, Mr. H. Richardson, A.M.Inst.C.E., at the Council House, Handsworth. Sealed tenders, endorsed according to Tender form, to be delivered at the office of the Surveyor, Council House, Handsworth, Birmingham, on or before December 19.

DECEMBER 20.—**Belfast.**—LEAD.—The Belfast City and District Water Commissioners invite tenders for the supply of 15 tons soft bar lead suitable for pipe jointing, to be run in moulds. Tenders to be delivered to Mr. R. Hamilton, Secretary, Water Office, Belfast, on or before 11 o'clock a.m. on December 20.

DECEMBER 20.—**Belfast.**—STORES.—The Belfast City and District Water Commissioners invite tenders for supplying the following stores:—(1) Hardware; (2) paints, oils, etc.; (3) timber; (4) Portland cement; (5) ropeyarn, etc.; (6) iron castings, etc.; (7) gun-metal couplings, caps, and plugs; (8) stationery; (9) printing; (10) carting; (11) oilskin clothing and rubber boots. Tenders (on office forms only) to be delivered before 11 o'clock a.m. on December 20, and to be endorsed "Tender for Stores." Mr. R. Hamilton, Secretary, Water Office, Belfast.

DECEMBER 20.—**Hull.**—LEAD, GLASS, ETC.—Hull Corporation invite tenders for the lead, glass, etc., required by the Property Committee during the ensuing year. Forms of tender for lead, glass, etc., may be obtained at the City Engineer's Office. Tenders, endorsed "Tender for Lead, Glass, etc.," are to be addressed to the Chairman of the Property Committee, and delivered at the Town Clerk's Office on or before December 20.

DECEMBER 20.—**Lambeth.**—KERB.—Lambeth B.C. invites tenders for the supply of 5,000 ft. of 8-in. by 12-in. grey Norwegian edge straight kerb and 500 ft. of 8-in. by 12-in. Norwegian circular kerb of various radii, to be delivered as directed to either of the Council's depots at St. James's-road, Brixton; Fenwick-place, Stockwell; or Cobbett-street, Clapham. Further information may be obtained upon application to the Borough Engineer at No. 346, Kennington-road, S.E., any weekday, from whom forms of tender can also be obtained. Sealed tenders, endorsed "Tender for Norwegian Kerb," to be delivered at the Town Hall, Kennington Green, London, S.E., not later than 12 o'clock noon on December 20.

DECEMBER 22.—**Wingate Grange.**—STORES.—Tenders are invited by Wingate Grange Colliery for the ensuing year's supply of castings, pit timber, joiner's timber, cement, oils, grease, brattice cloth, firebricks, fireclay goods, and iron. Form of tender, with conditions, may be obtained from Mr. Wm. Fleetham, Cashier, Wingate Grange Colliery. Applicants for forms must state the kind of stores they wish to tender for. Tenders must be addressed to the Owners of the Wingate Grange Colliery, and will be received up to December 22.

DECEMBER 24.—**Garforth.**—STORES.—The owners of Garforth Colliery invite tenders for colliery stores for the year 1907, viz.:—Iron, steel, iron and steel castings, nails, brattice cloth, india-rubber, timber, oils, grease, etc. Forms of tender may be obtained on application to the Owners of Garforth Colliery, near Leeds, to whom they must be returned not later than December 24.

DECEMBER 27.—**Dublin.**—STORES.—Alliance and Dublin Consumers' Gas Company Directors invite tenders for goods to be delivered on the Company's Works, Great Brunswick-street, in such quantities as may be required from time to time up to December 31, 1907. Samples of goods required are open to inspection on the works, Great Brunswick-street, and printed list of the articles required can be had on application to the Company's Offices, D'Olier-street. Tenders, endorsed "Tenders for Stores," to be lodged in office of Mr. Francis T. Cotton, Secretary and Manager, on or before December 27.

DECEMBER 29.—**Bury.**—MATERIALS.—Bury Corporation Tramways Committee invite tenders for the supply and delivery of the following materials:—Tramway rails and fishplates; tie-bars, fish bolts and nuts; points and crossings; sole or anchor plates; copper rail bonds; granite setts; cement. Specifications, etc., can be obtained on application at the office of Mr. Arthur W. Bradley, A.M.Inst.C.E., Borough Engineer and Surveyor, on payment of 2*l*. for each specification. Sealed tenders, endorsed "Tramway Rails, etc.," or as the

case may be, are to be forwarded to Mr. John Haslam, Town Clerk, Municipal Offices, Bank-street, Bury, and addressed to the Chairman of the Tramways Committee, so as to be received not later than December 29.

JANUARY 1.—**Norwich.**—BRICKS.—160,000 red bricks, equal in all respects to the sample which may be seen at office of Mr. Arthur E. Collins, M.Inst.C.E., City Engineer, Guildhall, Norwich, delivered as, when, and in such quantities as are required, alongside the sewage works in progress between Old Lakenham and Hall-road, Norwich. Tenders, on the forms supplied, enclosed in envelopes sealed with sealing-wax, endorsed "Bricks," and addressed to the Chairman of the Sewerage Committee, must be delivered at office of Engineer not later than 10 a.m. on January 1.

JANUARY 1.—**Reading.**—ROAD MATERIAL.—Berkshire C.C. ask for tenders for the supply of broken road materials, setts, channels, and kerbs for the twelve months ending March 31, 1908, delivered at railway stations and wharves in the county. On the receipt of a stamped addressed envelope forms of tender, list of stations and wharves, and full particulars will be forwarded by the County Surveyor. Tenders, endorsed "Tender for Materials," to be sent to Mr. J. Fred. Hawkins, County Surveyor, Bank-chambers, Cross-street Reading, by January 1. A specimen form of contract may be seen at the office of the Clerk of the County Council, 28, The Forbury, Reading.

* JANUARY 7.—**Wandsworth.**—WORK AND MATERIALS.—The Wandsworth Borough Council invite tenders for the execution of works and the supply of materials from March 31 next, for one, two, or three years, as per forms of tender, at the option of the Council. Specifications and forms of tender may be obtained, and form of contract seen, at the Council House, Wandsworth, S.W. Tenders (each enclosed in a separate envelope) are to be delivered under seal at the Council House, endorsed "Tender for ——," on or before January 7.

* JANUARY 14.—**Poplar.**—WORKS AND MATERIALS.—The Works Committee of the Poplar B.C. invite tenders for hire of horses and harness, barging away road sweepings, and for supply of stoneware sewer and drain pipes, etc., iron castings for sewerage and drainage works, scavengers' brooms, rotary machine sweeping brushes, and refilling old stocks. Forms of tender, specifications, and all particulars may be obtained on application to Borough Surveyor, Mr. Harley Heckford, at the Council Offices, on payment of 1*l.* 1s. in cash. Tenders, endorsed with the description of work tendered for, to be delivered to Mr. Leonard Potts, Town Clerk, Council Offices, High-street, Poplar, before noon, January 14.

* JANUARY 21.—**Camberwell.**—STORES, ETC.—The Camberwell B.C. invite tenders for the supply of stores, materials, etc. (for particulars see advertisement), to commence April 1, 1907, and terminate March 31, 1908. Forms of tender obtainable from Mr. William Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E., specifying section desired. Samples can be inspected at Grove Vale Depôt, opposite East Dulwich Station, between 10 a.m. and 12 noon and 1 p.m. to 4 p.m. Monday to Friday (Saturday to 1 p.m.). Tenders must be delivered at the Town Hall not later than 5.30 p.m., January 21.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*DEPÔT SUPERINTENDENT AND STOREKEEPER.....	Walthamstow U.D.C.	2*l.* 10s.	Dec. 28

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BUILDERS AND CONTRACTORS' PLANT—On land Millbank-street and Wood-street	T. J. Skelding	Dec. 17-18
*CONTRACTOR'S PLANT AND STOCK—At 155, St. Thomas-road, Finsbury Park, N.	Fuller, Horsey, Sons, & Cassell	Dec. 18

PATENTS.—*Continued from page* 703.

10,579 of 1906.—A. DEUSSEN: *Windows.*

This relates to a window or casement with a protective lattice or other screen through which air can pass and which comes into place in the window-opening when the ordinary glazed window is opened, and consists of two frames of which one receives the window and the other a protective screen, which frames are rotatably mounted on a bar or studs in a double wall frame, which may be made of angle iron. The glazed window frame is arranged at a right angle to the screen frame. Metal strips twisted at the ends may be employed to secure the frame of the apparatus to the wall. When the window is raised or opened, owing to the rigid connexion of the two frames, the protective screen is turned about the common pivot and brought into the frame or window-opening, so that while the room is ventilated the window-opening is nevertheless provided with a protective screen.

11,964 of 1906.—E. COFFIN: *Tiles.*

This relates to a tile having a hook or projection manufactured internally therewith on each side of the tile and symmetrically in relation to the vertical axis, and holes adjacent to the said projections to receive fixing means.

12,341 of 1906.—J. KITCHEN and H. C. BROWN: *Range Boilers.*

This relates to range boilers composed of end chambers connected by horizontal cross tubes, through which the water passes two or more times in series in its passage from the inlet to the outlet. One of these end chambers is divided into two compartments, and these two compartments are connected to the undivided chamber by horizontal cross tubes.

12,553 of 1906.—W. FRASER: *Joints for Pipes and Tubes.*

This relates to a pipe joint in which an automatically bevelled spigot fits within an inwardly bevelled faucet, and the joint is made by packing overlapping the bevels of spigot and faucet, and held in place by a divided ring, and consists of means for preventing leakage, consisting in forming stepped joints upon the ring or in superposing two rings in such position that they break joint.

12,789 of 1906.—HATTERSLEY BROTHERS, LTD., and W. H. TAYLOR: *Domestic Fireplaces.*

This relates to fireplaces having a canopy capable of angular adjustment, and consists in constructing the side cheeks of the canopy to pass through slots in the sides of the fireplace outside the fire-brick cheeks, and in providing a sliding blower carried in guides or a sheath canopy, means for retaining it in its raised position within the canopy, and for retaining it in its raised position within the canopy, and handles or equivalents by which the blower can be released and drawn downwards in front of the fireplace to serve as an extension of the canopy, or to completely close the front of the said fireplace.

14,940 of 1906.—J. LEA: *Stairs.*

This relates to a stair having a tread made with hollow beads and means such as bolts passing through the hollow beads for mounting the treads in position and securing the stringers together and to the treads.

12,930 of 1906.—W. TURNBULL: *Regulator Flushing Valve for Closets and the like.*

This relates to a flushing valve comprising in combination a valve chamber, a down pipe cap secured to the bottom of the valve chamber, a seating upon the cap and entering the valve chamber, a regulating chamber secured to the valve chamber, a perforated bottom to the regulating chamber, a valve rod having a recess in its upper end and radial holes communicating with the recess, the said rod passing through the valve chamber and into the regulating chamber, a stop valve within the valve chamber integral with the valve rod, a perforated plunger fitting loosely upon the upper end of the valve rod and resting upon a shoulder formed on the valve rod, a valve seating upon the plunger, a regulating valve fixed to the top of the valve rod; means for regulating the flow of water through the recess of the valve rod, and means for operating the valve rod.

16,577 of 1906.—J. T. BRENT and J. B. SOUTHARD: *Sash and like Windows.*

This relates to a sectional weight comprising a succession of separable units slidably engaged end to end, one of said units having a curved end rib having an overbearing part and extending centrally widthwise of the unit, and the other of said units having a curved end groove in and extending centrally widthwise of that unit and conforming to, engaging, and interfitting the rib aforesaid.

19,474 of 1906.—C. HEATH: *Draught and Dust Excluders for Doors.*

This relates to a draught and dust excluder for doors, and consists of a protecting guard-plate on the door frame to guide the lever, which is fixed to one end of the hinged flap, and to positively assist the turning of the latter upon its hinge as the door is opened.

20,434 of 1906.—J. G. WALKER: *Means for Opening and Closing or Manipulating Sashes, Doors, Shutters, or the like, which may be in Places not Readily Accessible.*

This relates to an apparatus for opening and closing or manipulating doors, sashes, shutters, or the like by means of fluid pressure or suction, and consists in the combination of a fluid pump with valves to govern the flow of such fluid situated between the pump barrel and the plug valve. The invention also consists in the combination of a sliding sleeve and stop block upon a piston-rod with ratchet pawls and rack for automatically locking the sash or the like in its closed or open position, and for releasing the said locking device to admit of the sash or the like being opened or closed.

21,768 of 1906.—A. E. J. PRICE: *Scoop Particularly Adapted for Cleaning Road and other Gullies.*

This relates to a scoop comprising a receptacle shaped with a projecting blade adapted to direct material into the receptacle through an opening in the latter.

3,397 of 1906.—W. A. SMYRK: *Scaffolding.*

This relates to a foldable scaffolding supporting-bracket or the like reversible support, and consists of a horizontal rail provided with a hinged or foldable strut and a hinged standard adapted to carry a guard rail by passing the lower end of such standard through a hole in the rail, and forming a rearwardly-curved eye nearly at right angles to the body of the standard.

19,992 of 1906.—S. MASON: *Stone-breaking Machines.*

This relates to a stone-breaking machine, and consists in the combination of a stock, a renewable shoe, and a block, together with a wedge-shaped bolt for securing the said shoe.

SOME RECENT SALES OF PROPERTY

ESTATE EXCHANGE REPORT.

December 1.—ERNEST J. GALE (at Burnham-on-Crouch).

Burnham-on-Crouch, Essex.—"Little Johns," and 3 a. 3 r. 28 p., f., y.r. 25*l.*	£290
"Little John's Farm," 15 a. 1 r. 13 p., f., p...	365
A freehold farm, 13 a. 1 r. 19 p., p.	180
Freehold pasture land, 5 a. 2 r. 20 p., p.	133
Market garden land, 10 a. 0 r. 31 p., f., p.....	160
Freehold brickfield, with cottage, 6 a. 2 r. 2 p., p.....	350

December 3.—By WILLIAM HOUGHTON.

Walthamstow.—14 and 16, Copeland-rd., f., w.r. 66*l.* 10s.	540
2, 4, 6, and 8, Church-la. (s.), f., w.r. 78*l.*	500
1 and 2, Rose Bank-villas, f., w.r. 72*l.* 16s. ..	600

December 4.—By DEBENHAM, TEWSON, & CO.

Highgate.—2, Norman-villas, u.t. 39½ yrs., g.r. 3*l.*, p.	250
Cheshunt, Herts.—Russell's Ride, two enclosures of freehold land, 5 a. 2 r. 25 p., p.	960

By FISHER, STANHOPE, & DRAKE.

Stamford Hill.—No. 148, u.t. 64 yrs., g.r. 10*l.* 12s., p.....	650

By FRITH, GARLAND, & CO.

Harringay.—73, Chesterfield-gdns., u.t. 83 yrs., g.r. 6*l.* 6s., e.r. 32*l.*	270
40 Rosebury-gdns., u.t. 83 yrs., g.r. 6*l.* 6s., e.r. 28*l.*	280

By MARK LIELL, & SON.

Shepherd's Bush.—8, 9, 10, and 11, Coleman's-building's, f., w.r. 106*l.* 12s.	845
Bromley-by-Bow.—116, 118, and 120, Devon's-rd., w.r. 91*l.*; also i.g.r. 8*l.*, u.t. 55½ yrs., g.r. 16*l.* 13s.	600
Hackney Wick.—58 to 78 (even), White Post-la., u.t. 42 yrs., g.r. 70*l.*, w.r. 293*l.* 16s.	900

By THORNBORROW & CO. (at Penrith).

Kamont Bridge, Cumberland.—"High Mill," with house, orchard, etc., f. (as a going concern)	1,425
Skelton, Cumberland.—Three freehold cottages	155

By HARRY BALL (at Bedford).

Goldington, Beds.—"Fern Villa," f., p.	£205
Kempston, Beds.—88 and 90, Margetts-rd., f., w.r. 20*l.* 16s.	195

By SCHOFIELD, EVANS, & Co. (at Masons' Hall Tavern).

Pimlico.—Grosvenor-rd., The "Morpeth Arms" p.-h., improved rental of 100*l.* for 19½ yrs.	970

December 5.—By JOHN BOTT & SONS.

Brixton.—64, Saltoun-rd., u.t. 66¼ yrs., g.r. 6*l.* 6s., w.r. 66*l.* 6s.	325

By STOKES & PINDER.

Marylebone.—17, Harcourt-st. (Chapel House), f., v.r. 70*l.*	1,400
26, Harcourt-st. (s.), f., y.r. 54*l.*	850
27 and 28, Harcourt-st. (s.), with workshop in rear, f.	1,810

By WILLOUGHBY, SON, & CALLOW.

Ratcliffe.—143, Brook-st. (s.), f., y.r. 30*l.*	325

December 6.—By BRIANT & SON.

Kennington.—66, Upper Kennington-la., f., y.r. 45*l.*	460
32 and 33, Esher-st., f., w.r. 72*l.* 16s.	750

By CHESTERTON & SONS.

Bayswater.—Pembridge-villas, etc., f.g. rents 55*l.*, reversion in 36½ yrs.	2,150

By ELLIOTT, TOMBS, & CO.

Edgeware Road.—Queen-st., f.g.r. 36*l.*, reversion in 40 yrs.	600
41, Queen-st., f., w.r. 90*l.*	800

By NEWBON, SHEPHERD, & EDWARDS.

Islington.—7, Arlington-sq., u.t. 20½ yrs., g.r. 6*l.* 6s., e.r. 45*l.*	270
Clerkenwell.—11, 12, and 13, Amwell-st., y.r. 130*l.*; also l.g.r. 14*l.*, u.t. 5 yrs., g.r. 8*l.* 10s.	305
Hornsey.—Ferrestone-rd., f.g.r. 7*l.* 10s., reversion in 88 yrs.	185
Lausanne-rd., f.g.r. 6*l.* 10s., reversion in 82 yrs.	160
Harringay.—Wightman-rd., f.g.r. 8*l.*, reversion in 69 yrs.	195
Duckett-rd., f.g.r. 7*l.*, reversion in 90 yrs.	170
Muswell Hill.—Colney Hatch-la., f.g.r. 10*l.*, reversion in 91 yrs.	245
Kensal Green.—Hazel-rd., f.g.r. 6*l.*, reversion in 89 yrs.	140
Herne Bay, Kent.—Canterbury-rd., f.g.r. 10*l.*, reversion in 91 yrs.	210

By STIMSON & SONS.

Hackney.—Bridge-st., f.g.r. 50*l.*, reversion in 69 yrs.	1,050
Lambeth.—31 and 33, Barbel-st. (s.), u.t. 30 yrs., g.r. 1*l.*, e.r. 80*l.*	400
New Kent Road.—3 to 21 (odd), Gurney-st., u.t. 36½ yrs., g.r. 175*l.*, w.r. 379*l.* 12s.	300
Peckham.—Azenby-sq., a freehold building site, area 12,600 ft.	500
Dulwich.—62, 64, 66, and 68, Thurlow-hill, u.t. 69½ yrs., g.r. 24*l.*, w.r. 154*l.* 14s.	700
Islington.—5, 6, and 7, Crossley-ter. (s.), u.t. 54 yrs., g.r. 25*l.* 10s., y.r. 167*l.* 10s.	1,090
Camden Town.—24, Rochester-pl. (stabling), u.t. 25 yrs., g.r. 3*l.*, y.r. 75*l.*	400
Battersea.—167, Battersea Park-rd. (s.), u.t. 56 yrs., g.r. 8*l.*, y.r. 50*l.*	345

December 7.—By BEDFORD & CO.

Chelsea.—Seaton-st., f.g. rents 23*l.* 10s., reversions in 418, 409, and 65 yrs.	550
Stockwell.—46, Andalus-rd., u.t. 68¼ yrs., g.r. 6*l.*, y.r. 32*l.*	305

By H. CHAPMAN & CO.

Covent Garden.—32, Wellington-st. (s.), area 950 ft., f., y.r. 110*l.* (toll free)	4,650

By CHADWICK & SONS.

Southall, Middlesex.—37 to 47 (odd) Northcote-av., e.r. 138*l.*	1,750

By MARTIN, WHITE, & CO.

Dulwich.—196, Barry-rd., u.t. 72 yrs., g.r. 7*l.*, y.r. 32*l.*	245

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold, p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

TERMS OF SUBSCRIPTION.

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MEETINGS.

FRIDAY, DECEMBER 14.

Architectural Association.—Mr. W. Howard Seth-Smith on "Architecture of Sicily," illustrated by lantern views. 7.30 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. Colin Sinclair on "The Philosophy of Art." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. A. Carmichael on "Mechanical Improvements in the Drainage of the Bedford Level." 8 p.m.

The Institution of Mechanical Engineers.—(1) Conclusion of discussion upon Mr. Thomas Clarkson's paper on "Steam as a Motive Power for Public Service Vehicles"; (2) if time permits, Mr. H. Fowler on "Lighting of Railway Premises: Indoor and Outdoor." 8 p.m.

MONDAY, DECEMBER 17.

Royal Institute of British Architects.—Mr. W. J. Dibdin on "The Strength and Composition of Mortars." 8 p.m.

University of London (Imperial Institute-road).—Mr. Banister Fletcher on "Greek Theatres, Tombs, Propylæa, etc." 8 p.m.

Builders' Benevolent Institution (31 and 32, Bedford-street, Strand, W.C.).—Committee meeting. 5 p.m.

TUESDAY, DECEMBER 18.

Northern Architectural Association.—Mr. S. Addison Smith on "Stresses and Strains." 7.30 p.m.

Architectural Association Camera and Cycle Club.—Mr. C. Wontner Smith on "Thaxted and Neighbourhood." 8 p.m.

Institution of Civil Engineers.—Mr. H. W. E. Le Fanu on "Mechanical Considerations in the Design of High-tension Switch-gear." 8 p.m.

WEDNESDAY, DECEMBER 19.

Architectural Association Discussion Section.—Mr. L. Stanley Crosbie on "The Responsibilities of Style." 7.30 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual meeting of the directors. 7 p.m. Ordinary meeting of the members. 8 p.m.

Edinburgh Architectural Association.—Mr. A. Hay Lamont on "The Seventh International Congress of Architects." 8 p.m.

Royal Meteorological Society (at the Institution of Civil Engineers, Great George-street, Westminster, S.W.).—(1) Admiral J. P. Maclear, F.R.G.S., on "The Guildford Storm of August 2, 1906"; (2) Mr. Richard Inwards, F.R.A.S., on "The Metric System in Meteorology." 7.30 p.m.

THURSDAY, DECEMBER 20.

Institution of Electrical Engineers.—Mr. H. G. Brown on "The Track Circuit as Installed on Steam Railways." 8 p.m.

TO CORRESPONDENTS.

H. C. P. (Amount should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	10	0	per 1000	alongside, in river.	
Bough Stocks and Grizzles	1	7	0	,,	,,	,,
Picked Stocks for Facings	2	17	6	,,	delivered.	
Flettons	1	8	0	,,	at railway depôt.	
Red Wire Cuts	1	14	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire	3	15	0	,,	,,	,,
Do. Bullnose	4	0	0	,,	,,	,,
Best Stourbridge Fire Bricks	3	14	0	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,
Headers	11	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	
Double Headers	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

BRICKS, &c. (continued).

GLAZED BRICKS (*continued*)—

	s.	d.		
Thames and Pit Sand	7	0	per yard,	delivered.
Thames Ballast	5	6	,,	,,
Best Portland Cement	27	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks	27s. 6d. per ton at rly. dpt.

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	,,	,,
PORTLAND STONE (20 ft. average)—				
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	10	per ft. cube, deld. rly. depôt.	
Beer ,,	1	6	,,	,,
Greenshill ,,	1	10	,,	,,
Darley Dale in blocks	2	4	,,	,,
Red Corsehill ,,	2	2	,,	,,
Closeburn Red Freestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.,	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks	3	0	per ft. cube,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super.,	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides slabs (random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.	
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube, deld. rly. depôt.
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super. deld. rly. depôt.
,, ,, ,, 3 in. sawn both sides random slabs	1	0	,, ,,
,, ,, ,, 2 in. do.	0	8½	,, ,,

SLATES.

In.	In.	£	s.	d.	
20×10 best blue Bangor		13	2	6	per 1000 of 1200 at r. d.
20×12	,, ,,	13	17	6	,, ,,
20×10 first quality	,,	13	0	0	,, ,,
20×12	,, ,,	13	15	0	,, ,,
16×8	,, ,,	7	5	0	,, ,,
20×10 best blue Portmadoc		12	12	6	,, ,,
16×8	,, ,,	6	12	6	,, ,,
20×10 best Eureka unfading green		15	17	6	,, ,,
20×12	,, ,,	18	7	6	,, ,,
18×10	,, ,,	13	5	0	,, ,,
16×8	,, ,,	10	5	0	,, ,,
20×10 permanent green		11	12	6	,, ,,
18×10	,, ,,	9	12	6	,, ,,
16×8	,, ,,	6	12	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. ,,
Best Broseley tiles	50	0	per 1000 ,,
Do. Ornamental tiles	52	6	,, ,,
Hip and Valley tiles	4	0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	,, ,,
Do. Ornamental do.	60	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	0	,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 ,,
Do. Ornamental do.	54	6	,, ,,
Hip tiles	4	1	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1000 ,,
Best Ornamental tiles	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,,
Do. pressed	47	6	,, ,,
Do. Ornamental do.	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	6	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less than best.			
Battens: seconds	0	10	0	,,	,,		
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	,,			

WOOD (continued).

BUILDING WOOD (continued)—	At per load of 50 ft. £ s. d.				£ s. d.		
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	...	4	15	0

JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	...	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 1 in.	18	10	0	...	20	0	0
" " 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3in. by 11in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
" " 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
" " 3 in. by 9 in.	12	10	0	...	13	10	0
" " battens	10	0	0	...	11	0	0
Pitch-pine: deals	18	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	"			
Seconds, regular sizes	33	0	0	"			
Yellow Pine oddments	28	0	0	"			
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	6
Small " "	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¼ in. do. do	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0

Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	0
¾ in. by 7 in. white " "	0	10	0	...	0	11	6
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.				£ s. d.		
Rolled Steel Joists, ordinary sections	7	5	0	...	7	15	0
Compound Girders, ordinary sections	9	10	0	...	10	10	0
Steel Compound Stanchions	12	5	0	...	13	5	0
Angles, Tees, and Channels, ordinary sections	9	5	0	...	10	5	0
Fitch Plates	9	5	0	...	10	5	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

	Per ton, in London. £ s. d.				£ s. d.		
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	0	0	...	9	10	0
Staffordshire "Marked Bars"	11	0	0	...	—		
Mild Steel Bars	9	5	0	...	9	10	0
Hoop Iron, bands price	9	10	0	...	9	15	0
" " Galvanised	17	10	0	...	—		

("And upwards, according to size and gauge.)

Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...	—		
" " 24 g.	11	0	0	...	—		
" " 26 g.	12	10	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14	10	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	0	0	...	—		
" " 26 g.	15	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	17	10	0	...	—		
" " 22 g. and 24 g.	18	0	0	...	—		
" " 26 g.	19	10	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	14	10	0	...	—		
" " 22 g. and 24 g.	14	15	0	...	—		
" " 26 g.	16	0	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	0	0	...	—		
" " 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	0	0	...	10	10	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.				£ s. d.		
LEAD—Sheet, English, 3lb. and up.	22	0	0	...	—		
Pipe in coils	22	10	0	...	—		
Soil pipe	25	0	0	...	—		
Compo pipe	25	0	0	...	—		
ZINC—Sheet—							
Vieille Montagne ton	34	0	0	...	—		
Silesian	33	15	0	...	—		
COPPER—							
Strong Sheet per lb.	0	1	4	...	—		
Thin " "	0	1	5	...	—		
Copper nails "	0	1	3	...	—		
BRASS—							
Strong Sheet "	0	1	2	...	—		
Thin " "	0	1	3	...	—		
TIN—English Ingots "	0	1	11	...	—		
SOLDER—Plumbers' "	0	0	9	...	—		
Tinmen's "	0	0	11½	...	—		
Blowpipe "	0	1	1	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft.	delivered.
" fourths	1½d.	"	"
21 oz. thirds	3½d.	"	"
" fourths	2½d.	"	"
26 oz. thirds	4½d.	"	"
" fourths	3½d.	"	"
32 oz. thirds	5d.	"	"
" fourths	4½d.	"	"
Fluted Sheet, 15 oz.	3½d.	"	"
" 21 oz.	4½d.	"	"

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2½d.	per ft.	delivered.
⅜ "	2¾d.	"	"
½ "	3d.	"	"
Figured and Oxford Rolled "Oceanic" Glass, white	4d.	"	"
Do. " tinted	5½d.	"	"

OILS, &c.		£ s. d.	
Raw Linseed Oil in pipes	per gallon	0 1 10	
" " " in barrels	"	0 1 11	
" " " in drums	"	0 2 1	
Boiled " " in pipes	"	0 2 0	
" " " in barrels	"	0 2 1	
" " " in drums	"	0 2 3	
Turpentine in barrels	"	0 4 0	
" in drums	"	0 4 2	
Genuine Ground English White Lead	per ton	28 0 0	
Red Lead, Dry	"	24 0 0	
Best Linseed Oil Putty	per cwt.	0 7 0	
Stockholm Tar	per barrel	1 12 0	

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

PUBLISHER'S NOTICES.

Nat. Tel., 6112 Gerrard. Telegrams, "The Builder, London."

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

Six lines or under ... 0s. 0d.
Each additional line ... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ... 4s. 6d.
Each additional line (about ten words) ... 0s. 6d.

Terms for series of Trade advertisements, and for front page and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

Four lines (about thirty words) or under ... 2s. 6d.
Each additional line (about ten words) ... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps must not be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," 4, Catherine Street, W.C.

Advertisements or the current week's issue are received up to HALF-PAST ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST TWELVE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have Replies addressed to the Office, 4, Catherine Street, Covent Garden, W.C., free of charge. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication. N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { HINGPENCE EACH. By post (carefully packed) 1s. }

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ALBERT-VILLAGE.—For the erection of new Council School at Albert-village, for Leicestershire County Council Education Committee. Mr. W. H. Simpson architect, The Corridor Chambers, Leicester:—

T. Hickman	£4,465	R. Kershaw	£4,185
J. E. Johnson & Son	4,400	A. B. Moss	4,120
E. Orton	4,272	W. M. Sharp	3,997
T. Lowe & Sons	4,250	T. Orton & Son	3,995
Griffin Bros.	4,250	Scurr, Jowett, & Co.	3,980
E. Fox	4,240	E. Haycock & Sons, Great Glenn*	3,950
J. T. Ball	4,210		

ALNWICK.—For constructing a main sewer along the east side of Alnmouth, for the Rural District Council. Mr. M. Temple Wilson, Surveyor, Alnwick:—

W. Howey, Low Humbleton, Wooler, R.S.O.* £135 10 9

BANBURY.—For street works, Queen-street and Bath-terrrace, for the Town Council. Mr. N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury:—

J. S. Kimberley, Banbury* ... £529

BATTRAM.—For the erection of a Council school, Ibstock parish, for Leicestershire County Council Education Committee. Messrs. Goddard & Wain, architects, Station-chambers, Coalville:—

W. W. Webster	£3,450 0 0		
R. Blower	3,398 15 0		
T. A. Wileman	3,341 0 0		
E. Orton	3,257 0 0		
W. F. Harding	3,229 8 6		
W. Crane & Son	3,206 0 0		
Hewes Bros.	3,050 0 0		
Griffin Bros.	2,986 15 0		
A. B. Moss	2,950 0 0		
H. W. Beck & Son, Market Bosworth*	2,894 0 0		

BRISTOL.—For alterations and additions, including cast-iron and steel work, in connexion with a warehouse in Bristol, for Mr. S. Iles, under the superintendence of Mr. T. J. Moss-Flower, A.M.Inst.C.E., Carlton-chambers, Bristol, and 28, Victoria-street, Westminster, London:—

T. Lovell & Son, Bristol† ... £1,130

EASTHAMPSTEAD.—For building a new school for 200 scholars at Priestwood, Easthampstead, near Bracknell, for Berkshire Education Committee. Mr. E. Fisher, architect, 19, Buckingham-street, Strand. Quantities by Messrs. Hicks & Lynam:—

		Extra for Tiled Dado.
J. C. Sargeant	£3,700 0 0	£190 0 0
J. S. Kimberley	3,218 0 0	179 0 0
J. Knight	3,200 0 0	182 0 0
W. J. Fryer & Co.	3,179 15 0	172 0 0
Drowley & Co.	3,146 0 0	168 0 0
F. Bissley	3,125 0 0	137 0 0
F. W. Romain & Sons	3,008 1 10	126 13 3
G. B. Gibson	2,988 0 0	200 0 0
H. Burfoot & Son	2,980 0 0	165 0 0
W. Watson	2,931 0 0	162 0 0
A. Faulks	2,886 1 4	207 0 0
G. Brown	2,881 6 10	135 14 0
A. J. Colborne	2,880 8 6	48 0 0
Chick, Carden, & Co., Ltd.	2,875 0 0	147 2 2
McCarthy E. Fitt	2,846 0 0	150 0 0
C. W. Cox & Sons	2,829 0 0	171 0 0
F. & G. Foster	2,764 0 0	157 0 0
E. C. Hughes	2,756 0 0	171 19 6
M. Payne & Co., Bracknell*	2,603 15 0	160 0 0

FYVIE.—Accepted for alterations and repairs on manse of Fyvie. Messrs. Duncan & Son, architects, Turriff:—

Mason: J. Ferguson, Fyvie
Carpenter: W. H. Skene, Turriff
Slater: J. P. Pirie, Fyvie
Plasterer: J. Clark, Turriff
Plumbers: C. Duthie & Sons, Turriff
Painter: J. D. Watson, Turriff
} £326 17

HARROGATE.—For private street works required in Back-road at the side of No. 4, Springfield-avenue, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor, Harrogate:—

A. Leedham, 4, Park-villas, New Park, Harrogate* ... £185 14 5

HOLBROOK.—For repairs and alterations to the Milt Bridge, for Samford Urban District Council. Mr. W. C. Whiting, District Surveyor, East Bergholt:—

A. Gayford	£393 10	W. Wagstaff, Holbrook*	£155 14
W. Aldous	365 0		

ILFORD.—For 700 lineal ft. of wrought-iron ornamental fencing and gates and 4,670 lineal ft. of steel fencing, for the Urban District Council. Mr. H. Shaw, Engineer and Surveyor, Town Hall, Ilford:—

J. Eiwell, Sherborne-street, Birmingham* ... £1,088 16 8

LONDON.—For erecting shop, No. 15, Highgate-hill. Mr. C. W. Calicott, architect, 58, Theobalds-road, W.C.:—

Gann Bros.	£479	Goodall & Son	£442
Todd & Newman	456	Edwards & Medway*	433
Green & Smith	446		

LONDON.—For (1) the removal of two externally fired boilers and one externally fired water-heater, and the supply and erection of two Cornish boilers, steam and feed pipes, pump, hot-well, calorifier, etc., and (2) for the boiler, seatings, flues, building alterations, etc., at St. George's Workhouse, Mint-street, Borough, S.E., for the Southwark Guardians:—

	(1)	(2)
Stubbs, Son, & Hall, Wimbledon*	£476 17 10	£99 10 0

LONDON.—For erection of new Archway Assembly Hall, Hargreave-road, Upper Holloway, N. Messrs. Coleman & Holmes, architects:—

McCormick & Sons	£2,882	H. W. Grainger, Southend*	£2,250
Galbraith Bros.	2,500		
Mattock & Parsons	2,279		

LONDON.—For decorations and repairs at "The Napier Restaurant," High Holborn. Mr. C. W. Calicott, architect, 58, Theobalds-road, W.C.:—

Adams & Ward	£987 0 0	Eames	£732 0 0
Goodall & Son	868 0 0	McLaughlin & Harvey	699 0 0
Millman & Co.	857 15 6	W. Higgs	681 0 0
Courtney & Fairbairn	825 0 0	C. Withers	653 0 0
Hawkins	750 0 0	Green & Smith*	646 10 0

LONDON.—For erecting No. 4 (shops and premises), Highgate-hill, N. Mr. C. W. Calicott, architect, 58, Theobalds-road, W.C.:—
W. Higgs, Leytonstone, and 13, Highgate-hill*.. £4,692

LONDON.—For heating Allen-street transferred permanent school, Kensington, S., for the London County Council:—

C. Kite & Co.	£125 0	J. Wontner-Smith	£99 15
Palowkar & Sons	110 0	J. Yetton & Co.	93 5
G. Davis	108 0	W. G. Cannon & Sons, Ltd., 107, London-road, Southwark*	85 0
J. Defries & Sons, Ltd.	105 0		
Stevens & Sons	100 0		

[The estimate of the Architect (Education) comparable with the tenders is £79.]

LONDON.—For electric light installation, Knightsbridge fire-station, for the London County Council:—

O. Clark & Co.	£235 10	W. J. Fryer & Co.	£197 0
L. Sunderland & Co.	235 0	Blackburn, Starling, & Co., Ltd.	195 0
Durell & Co.	235 0	Smeeton & Page, 29, Queen Victoria-street, E.C.*	154 8
G. Weston & Sons	230 0		
Coleby & Co.	225 0		
F. Suter & Co., Ltd.	218 0		

LONG DITTON.—For the construction of six filter-beds, a service reservoir, etc, for the Metropolitan Water Board:—

J. Mowlem & Co., Ltd.	£101,625 0 0
W. Manders	97,182 7 5
Perry & Co.	92,232 0 0
H. Lovatt, Ltd.	89,345 18 8
S. Pearson & Son, Ltd.	83,618 1 2
W. Kennedy, Ltd.	83,531 10 7
A. E. Nunn	72,627 1 10
F. Osman	71,856 0 0
T. Docwra & Son	69,998 14 6
Kirk & Randall	67,824 0 0
Pedrett & Co.	61,893 19 3
J. Aird & Sons	61,876 15 10
G. Hay & Co.	61,696 4 8
C. Wall, Ltd.	61,309 0 0
R. H. B. Neal, Ltd.	57,443 14 5
J. Moran & Son, Ltd.	56,996 0 0
W. Muirhead & Co.	55,604 13 0
Pethick Bros., London*	54,783 0 0

MAIDSTONE.—For additions to the administration block at the Sanatorium, Fant-lane, for the Borough Council:—

Barden & Head	£470 0	R. Corben & Co.	£445 0
Cox Bros.	459 0	H. J. Smith & Son	399 18
Elmore & Son	452 17	Clarke & Epps	381 10
G. Pearce & Sons	450 0	W. T. Burrows*	378 2
R. Avard	447 0		

[All of Maidstone.]

PERRANUTHNOE.—For erecting a residence at Perranuthnoe, near Marazion, for Mr. A. H. Laity. Mr. R. J. Wearne, architect, Gunw-alloe, Helston. Quantities by the architect:—

Thomas Bros.	£335 0	Miners & Williams, Marazion*	£260 0
Miners & Son	307 10	Pow	257 10
Thomas & Gundry	291 10		

[The whole of the walling stone, lintels, sills, mullions, steps, tiles for floors and stoves, are not included in these prices, as same will be provided by the proprietor.]

PURFLEET.—For the Vacuum Oil Company, Purfleet. Mr. C. S. Wardle, engineer:—

Harris & Wardrop	£2,745	Hind	£2,451
Carter	2,676	Wallis	2,381

SHINCLIFFE.—For levelling 2½ acres of land for sewage irrigation, etc., for the Durham Rural District Council. Mr. G. Gregson, Surveyor, 38, Saddler-street, Durham:—

J. Carrick	£200 0 0	R. Oliver, Gilesgate Moor, Durham*	£116 19 3
J. G. Bradley	145 0 0		

SLOUGH.—For making-up, etc., Gray's-road, for the Urban District Council. Mr. W. W. Cooper, Town Surveyor, Slough:—

Burfoot & Son	£325	Lee & Son	£262
H. D. Bowyer	319	Langley & Co.	260
Ripley & Co.	302	Hardy, Bate, & Co.	255
Free & Son	291	Smith & Son, Naphill*	249
Gibbons	264		

WASHINGTON.—For water supply works, for the Chester-le-Street Rural District Council. Mr. J. H. Mole, Surveyor to the Council:—
W. Elliott, Bishop Auckland..... £278 16 6

WATFORD.—For drainage of houses, Watford-heath, for the Urban District Council. Mr. D. Waterhouse, Engineer and Surveyor:—

C. King	£155 0 9	Pitkin	£89 1 5
Soan	131 15 0	Payne	80 2 0
D. J. Collins	108 0 0	Chesswass	78 7 6
F. H. King	107 7 6	Jones	74 4 3
Williams & Co.	106 12 8	Clifford & Gough	73 0 0
G. Wiggs	98 10 0	Bracey & Clark, Watford*	68 3 0
W. Judge	95 10 9		
Carley & Co.	89 17 10		

WATFORD.—For sewerage of Hempstead-road, etc., for the Urban District Council:—

A. E. Nunn	£3,604 13 6	Macdonald	£2,541 16 0
W. Judge	3,076 18 6	C. Castle & Co.	2,133 10 5
D. T. Jackson	3,043 4 6	H. Brown, Watford*	1,928 0 0
E. E. Iles	2,894 9 5		
Smith & Co.	2,639 12 9		

WELLINGBOROUGH.—For pumping machinery, gas engine, and suction gas plant at Bushfields Waterworks, for the Urban District Council. Mr. E. Y. Harrison, Surveyor and Water Engineer, Park-road, Wellingborough:—

Crossley Bros., Ltd.	£1,840 0 0
R. Warner & Co.	1,812 10 0
Hayward, Tyler, & Co.	1,730 3 3
Dynamic Gas Company	1,685 17 0
J. Simpson & Co.	1,684 10 0
J. Watts & Co.	1,622 12 0
Glenfield & Kennedy, Ltd.	1,584 0 0
Ruston, Proctor, & Co.	1,473 0 0
A. C. Potter & Co.	1,472 0 0
Davey, Paxman & Co.	1,461 0 0
Haste Pump Company	1,427 0 0
Campbell Gas Engineering Co.	1,419 0 0
Boulton & Paul	1,364 16 6
Mather & Son	1,298 0 0
Death & Ellwood	1,285 0 0
Excelsior Engineering, Ltd.	1,260 0 0
Dougills Engineering, Ltd.	1,245 0 0
Nursey & Marr	1,229 0 0
Pratchitt Bros.	1,185 10 0
Pollock, Whyte, & Waddel	1,172 10 0
Tangyes, Ltd., Birmingham*	1,074 0 0
Mather & Platt	986 0 0

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